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SIERRA LEONE.

Annual Report

ON THE

MEDICAL DEPARTMENT

FOR THE

YEAR ENDED 31ST DECEMBER, 1917.

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SIERRA LEONE.

ANNUAL MEDICAL REPORT FOR THE YEAR ENDING 31ST DECEMBER, 1917.

I.—ADMINISTRATIVE.

STAFF.

The Medical Staff consisted of :—

The Principal Medical Officer.
The Senior Sanitary Officer.
The Provincial Medical Officer.
The 2 Senior Medical Officers.
A Sanitary Officer.
The Medical Officer of Health.
18 Medical Officers, and subsequently 15.
4 Native Medical Officers.

The following changes took place in the staff :—

Dr. D. Burrows, Provincial Medical Officer, retired from the Public Service on the 16th of June.

Dr. A. E. Horn appointed Provincial Medical Officer, in place of Dr. Burrows invalided, and seconded for duty in East Africa.

The following Medical Officers are still engaged outside the Colony, viz. :—Drs. J. S. Pearson, W. A. Nicholson, E. J. Powell, P. A. Clearkin, J. M. Clarke, J. M. O'Connel, E. H. Mayhew, F. E. Whitehead, G. G. Butler, R. Semple, O'Hara May and H. E. Arbuckle.

Dr. D. Burrows acted as Principal Medical Officer in the absence of the Principal Medical Officer on furlough from 1st January to 3rd April.

Dr. T. F. G. Mayer as Provincial Medical Officer from 1st January to 3rd April, and from 24th April to the end of the year.

Dr. E. W. Wood-Mason acted as Senior Medical Officer from 1st January to 3rd April, and from 24th April to the end of the year.

Employment of Temporary Assistance.—Dr. T. C. Maxwell, Medical Practitioner, was temporarily engaged from 12th November to the end of the year.

The European Nursing Sisters.—Miss I. Stevens, Nursing Sister, acted as Matron from 1st January to 19th May, during the absence of the Matron on furlough. Miss C. Littlewood was in charge of the Nursing Home from 24th May to 27th November.

FINANCIAL.

Revenue, Medical Department.

	1917.			1916.		
	£	s.	d.	£	s.	d.
Hospital Receipts	621	7	9	138	17	5
Nursing Home Receipts	333	13	6	186	7	9
Sale of Medicines	469	13	11	356	18	7
Druggists' Fees	5	0	0	1	10	0
Maintenance of Lunatics	598	2	6	581	15	5
Total ...	£2,027	17	8	£1,265	11	2

Total expenditure: 1917, £33,147 14s. 11d.; 1916, £36,017 1s. 11d.

II.—PUBLIC HEALTH.

GENERAL REMARKS.

1. The total number of patients treated at the Colonial Hospital and Dispensaries throughout the Colony and Protectorate was 57,765, showing an increase of 2,597 attendances over the year 1916.

2. Reports on the Colonial Hospital, Nursing Home, and Clinical Laboratory give a general outline of the health conditions of Freetown.

3. *Malarial Fever.*—The number of admissions to Hospital and attendance in the different Dispensaries for this disease are practically the same as for previous years, *i.e.*, 3,004, as against 3,008 for 1916. 1,197 blood examinations were made in the Laboratory at Freetown, giving the following results :—

Subtertian	293
,, and crescents	4
Crescents alone	9
Benign Tertian	16
Quartan	4
Total	326

4. *Small-pox.*—It is satisfactory to report that the epidemic of this disease, which had visited the Colony and Protectorate during the years 1915 and 1916, showed a marked decline in the number and severity of the cases treated during the period under review. This state of affairs was mainly due to the fact that a large number of vaccinations were done in the previous year.

ANNUAL VACCINATION RETURNS.

	1915.	1916.	1917.
Total number vaccinated	6,880	87,705	110,988
Total number successful	4,976	71,744	68,768

The falling off in the number of successful vaccinations recorded in 1917 is accounted for in two ways :—

(*a*) By the large number of carriers who were vaccinated, but before any further inspection could be made to verify the result, these carriers were sent to the different seats of war, so no record could be obtained of the result.

(*b*) Owing to the shortage of Medical Officers, adequate measures for checking these vaccination returns were difficult.

The system of training Protectorate natives for vaccination purposes in their own chiefdoms has continued and proved useful, but one or two Inspecting Medical Officers are required so as to check and otherwise supervise their work.

5. *Yellow Fever.*—Three cases of this disease were reported last year, all the cases ending fatally. One case occurred at the Railway Headquarters,

Clinetown, about two miles from Freetown, and prompt measures were adopted by the Sanitary Department to prevent, if possible, the spread of the disease. It is satisfactory to note that their efforts were quite successful, no further case being reported from this district during the year.

The other cases occurred at Makene in the Karene Sub-District, on the Branch Railway line, some miles from Freetown, and I do not think it will be out of place if I quote from the Senior Sanitary Officer's Report on this outbreak, which he wrote immediately after visiting the infected area :—

"On reading the history of the American Wesleyan Mission in Africa, which, however, has not been brought completely up to date, one was struck by the number of deaths among the workers, all occurring in the dry season, which had been ascribed to African Fever and Hæmaturic Fever, and in most cases (viz., 7 out of 9 deaths) took place during the first tour in the country. Mr. Clarke, the late Superintendent of the Mission, who wrote its history and lost his wife at Kunso on the 19th March, 1897, later on became inclined to the opinion that the disease which cut off so many Missionaries might be Yellow Fever.

"Another curious feature of the disease, which was probably the same in all cases, was that it frequently carried off its victims in pairs, only a short space of time elapsing between the death of one patient and that of the next, and this peculiarity was also noticeable among those Missionaries who had died at the American Sudan Mission, Makump, and at the Bethel Mission near Mesimera, some of whom are known to have had black vomit.

"The following information was obtained from various sources :—

"(*a*) Missionaries and the child of a Missionary attached to the American Wesleyan Mission, who died at Kunso and are buried there.

Name.	Age.	Arrived in Sierra Leone.	Died.
Irvin F. Johnston ...	5 years.	March, 1892 ...	January 8th, 1894.
Anna P. Clark	30 ,,	November, 1893 ...	March 19th, 1897
Mr. Danner	32 ,,	January 13th, 1901	December 10th, 1901.
William C. Boardman ...	37 ,,	February, 1902 ...	March 27th, 1902.
John T. Ayers	27 ,,	June, 1905 ...	December 31st, 1905.
A. Marie Stephens ...	38 ,,	October, 1905 (2nd tour.) ...	January 1st, 1906.
John C. Ovenshire ...	32 ,,	November, 1909 ...	January 9th, 1912.
Miss Day	28 ,,	October 29th, 1916	December, 27th, 1917.
Mrs. Sprague	36 ,,	November 1915 ... (2nd tour.)	January 4th, 1917.

"Mr. Clarke, Superintendent of the Mission, was stated to have suffered from Hæmaturic Fever on March 22nd, 1902.

"(*b*) Deaths which occurred among workers at the American Sudan Mission, Makump. Details of towns, etc., were not obtainable.

Name.	Date of Death.
David C. Miller	November 18th, 1894.
Reverend Benjamin Luscomb	April 2nd, 1895.
Fidelia Drew	April 16th, 1895.
Mrs. M. M. Francis	April 1st, 1897. (Had black vomit.)
Malem R. Hill	April 9th. 1897.
Ella M. Shootbridge	May 17th, 1899.
Fredolph E. Swennson	September 30th, 1899.

" (*c*) Deaths which occurred at the Bethel Mission, which is a branch of the American Sudan Mission near Mesimera.

Name.	Date of Death.
Miss Wells	June 18th, 1904. (Had black vomit)
Miss Goeth	June 19th, 1905.

" From a consideration of the above tables, and from what one can gather from the various Missionaries, one is inclined to believe that most, if not all, of the deaths recorded were due to a like infection, which was probably that of Yellow Fever, and the disease appears to have been contracted in most cases in the localities in which the patients resided, although it may have been introduced there by others."

Dysentery.—This disease still shows a slight increase in the number of cases treated over 1916, but this state of affairs will continue as long as the existing wells, which are in close proximity to the present necessary cesspits, are allowed to remain open; water-borne intestinal diseases, especially amœbic dysentery, will continue to thrive, and consequently reduce the resisting powers of the Sierra Leoneans to withstand any acute sickness that may attack them. I may add that dysentery is looked upon by the inhabitants of Freetown as a trifling matter, and, except for the inconvenience the diarrhœa and pain may cause at the time, they are quite content to have these symptoms treated at home by some astringent, etc. Unless the diarrhœa is accompanied by considerable pain, they seldom seek medical advice.

HILL STATION.

The total number of Europeans residing at Hill Station during the year was 71. They were divided as follows:—

Government Officials	44
Military „	5
Missionaries	5
Non-officials (including wives of civil and military officials)	17

The health was satisfactory throughout the year.

GENERAL HEALTH OF EUROPEAN OFFICIALS.

The total number of officials resident in the Colony and Protectorate was 210, and the average number was 110.

There were two deaths during the year, both from Yellow Fever, and nine officials were invalided, as against eight in 1916. The cause of invaliding in each case was: Enteritis due to Lambliasis, Chronic Glaucoma of left eye, Chronic Nephritis, Pyorrhœa Alveolaris, Anæmia, Purpura Hæmorrhagica, Blackwater Fever, Tropical Neurasthenia and Anæmia, Boils and Anæmia.

EUROPEAN OFFICIALS—1917.

TABLE SHOWING THE SICK, INVALIDING AND DEATH-RATES OF EUROPEAN OFFICIALS.

	1916.	1917.
Total number of Officials resident	272	210
Average number resident	172	110
Total number on the sick list	176	197
Total number of days on the sick list	1,297	1,673
Average daily number on the sick list	3·54	4·58
Percentage of sick to average number resident	2·05	4·16
Average number of days on the sick list to each patient	7·36	8·94
Average sick time to each resident	7·54	15·20
Total number invalided	8	9
Percentage of invalidings to total residents	2·94	4·28
Percentage of invalidings to average number resident	4·65	8·18
Total deaths	1	2
Percentage of deaths to total residents	0·36	0·95
Percentage of deaths to average number resident	0·50	1·81

The above Table is interesting when compared with the corresponding Table of 1916.

The Table shows a large decrease in the actual number of European Officials residing in the Colony and Protectorate, as compared with 1916; but the sick, invaliding, and death is in excess of that year, and the number of days lost to the Government through sickness is very marked in 1917. One can only presume that this increase is due to the fact that many officials had to extend their tours of service owing to war conditions, and the figures for 1920 and future years ought to be of interest when the effect of peace has been well established.

H. TWEEDY, P.M.O.

MEDICAL DEPARTMENT,
SIERRA LEONE,
23*rd Dec.*, 1918.

NATIVE OFFICIALS—1917.

	1916.	1917.
Total number of Officials resident	480	650
Average number resident	460	550
Total number on the sick list	670	1,042
Total number of days on the sick list	3,403	4,853
Average daily number on the sick list	9·29	13·29
Percentage of sick to average number resident	2·01	2·41
Average number of days on the sick list to each patient	5·07	4·65
Average sick time to each resident	7·39	8·82
Total number invalided	18	21
Percentage of invalidings to total residents	3·75	3·23
Percentage of invalidings to average number resident	3·91	3·81
Total deaths	1	1
Percentage of deaths to total residents	0·20	0·15
Percentage of deaths to average number resident	0·21	0·18

III.—HOSPITALS AND DISPENSARIES.

ANNUAL REPORT OF THE COLONIAL HOSPITAL.

By Dr. C. H. ALLAN, S.M.O.

Dr. Mayer, Senior Medical Officer, was in charge of the Hospital during the year, and Drs. Wood-Mason, Wood, and Wright were attached, while temporary assistance was also given by a local practitioner, Dr. Maxwell.

The Government Dental Surgeon, Mr. Hardie, was resident in the Colony from January 1st to February 6th and from March 31st to April 11th.

The Clinical Laboratory was in charge of Dr. Young (who writes the report) until he left for England in August. Dr. Wood was in charge during Dr. Young's leave.

Hospital: In-Patients.—The total number of patients treated during the year in the wards was 1,664. Of these 107 died, but 28 of the deaths occurred within 24 hours of admission.

In	1910	the	deaths	were	141	in	1,500,	or	9·13 per cent.
„	1911	„	„	„	133	„	1,535,	„	8·66 „ „
„	1912	„	„	„	111	„	1,689,	„	6· 5 „ „
„	1913	„	„	„	109	„	1,513,	„	7· 2 „ „
„	1914	„	„	„	110	„	1,443,	„	7· 6 „ „
„	1915	„	„	„	89	„	1,136,	„	7· 8 „ „
„	1916	„	„	„	89	„	1,096,	„	8·12 „ „
„	1917	„	„	„	107	„	1,644,	„	6·43 „ „

As in the preceding year, it was found necessary to keep Hart's Ward for European Sailors; a separate report on this Ward is given by Dr. Wright, who also writes an account of the Midwifery done in the King Harman Ward.

Out-Patients.—The number of patients treated in the Out-patient Department during the year was 8,456, and the total attendances 21,139, the latter being an increase of 1,604 over the preceding year. 262 operations were performed during the year, being an increase of 70 operations over 1916. I attach list of operations.

OPERATIONS.

The total number of operations performed during the year was 262. They are shewn in the following table :—

	Successful.	Not relieved.	Died	Total.
Abscess of liver	5	—	—	5
Abscesses	33	3	1	37
Ainhum	2	—	—	2
Adenoma	1	—	—	1
Appendicitis abscess	4	—	1	5
Amputations	17	—	—	17
Arthritis incisions...	1	—	—	1
Balanitis	4	—	—	4
Buboes	2	—	—	2
Buboes, inguinal	2	—	—	2
Carbuncle	5	—	—	5
Cellulitis	8	—	—	8
Circumcision	11	—	—	11
Cornea foreign body	1	—	—	1
Crushed fingers	2	—	—	2
Crushed foot	1	—	—	1
Cysts sebaceous	1	—	—	1
Dental abscess	1	—	—	1
Dental Caries	2	—	—	2
Dislocations...	5	—	—	5
Dysmenorrhœa (dilatation)	1	—	—	1
Elephantiasis	4	—	1	5
Endometritis	2	—	—	2
Extravasation of urine	5	—	3	8
Excision of eye	1	—	—	1
Foreign body, removal of Fistula in Ano... ...	1	—	—	1
Fracture	8	—	—	8
Gangrene of hand	1	—	—	1
Gunshot wounds	2	—	1	3
Glands of neck	1	—	—	1
Filaria Loa, injection of Galyl for	2	—	—	2
Hernia, Radical cure of Femoral	1	—	—	1
„ „ „ „ Inguinal	10	—	1	11
„ Strangulated	5	—	3	8
Hydrocele, radical cure	3	—	—	3
Incised wound	2	—	—	2
Incomplete abortion	5	—	—	5
Intestinal anastomosis	1	—	—	1
Ischio rectal abscess	1	—	—	1
Keloids	3	—	—	3
Lipoma	2	—	—	2
Laparotomy...	7	—	2	9
Mastitis	9	—	—	9
Myositis Incision	1	—	—	1
Necrosis and Sequestrotomy	14	2	—	16
Osteitis	1	—	—	1
Osteo-Myelitis	1	—	—	1
Peritomitis Tubercular	2	—	—	2
Perineal tear	2	—	—	2
Phimosis	1	—	—	1
Placental polypus	1	—	—	1
Purulent Arthritis	1	—	—	1
Retained placenta	1	—	—	1
Retention of urine	1	—	—	1
Ruptured urethra	1	—	—	1
Sarcoma	2	—	—	2
Septic hand...	4	—	—	4
Septic finger	1	—	—	1
Septic tumour of eye	1	—	—	1
Sinuses (bone, etc.)	2	—	—	2
Strictures, etc.	4	—	—	4
Supernumerary Toes	1	—	—	1
Teeth extractions	3	—	—	3
Trephining	2	—	1	3
Tubercular glands	2	—	—	2
Ulcers	2	—	—	2
Wounds	2	—	—	2
Whitlows	5	—	—	5
Total	243	5	14	262

Hart's Ward and the Segregation Bungalow have been used during the year solely as European Wards.

They have been used chiefly for Seamen from the Mercantile Service.

There were 12 beds in Hart's Ward, but with the onset of the rains the number had to be increased to 16, owing to an increase in the number of cases of Malaria.

In the Bungalow there were 3 beds.

During the year 226 Patients were admitted to these Wards. There were 8 deaths; the cause of death being Appendicitis in 3 cases (the appendix cases were often of long standing and in very bad condition on account of the occupation of the patients not permitting of prompt treatment), Fracture of Spine, Fracture of Skull, Yellow Fever, Heart Disease, and Extravasation of Urine.

The most prevalent disease was Malaria, nearly all of the Subtertian type. In nearly all the 88 cases the diagnosis was confirmed by the blood examination made in the Hospital Laboratory.

The next most prevalent disease treated in the Ward was Syphilis. There were 30 cases treated during the year, and the majority of them were in the primary or early secondary stage. Nearly all were treated with intravenous injections of Galyl—the number of injections given depending on the length of stay of the Patient's ship in port.

Very few men were left behind by their ships on this account, they as a rule being given instructions to continue their treatment at their next port of call.

Appended is a list of the cases treated during the year :—

	No. of cases.		No. of cases.
Malaria	88	Head-ache	1
Syphilis	30	Gout	1
Appendicitis	7	Anæmia	2
Undiagnosed	7	Sciatica	1
Abscess	7	Perisplenitis ...	1
Pulmonary	6	Heart Disease ...	1
Amoebic Dysentery ...	5	Dental Caries ...	1
Gonorrhœa	4	Orchitis	1
Fractures	6	Tb. Gland	1
Frost Bites	3	Scurvy	1
Severe Bruises ...	3	Diarrhœa	1
Renal Calculi ...	3	Yellow Fever ...	1
Neurasthenia ...	3	Pneumonia	1
Crushed Finger ...	2	Congested Liver ...	1
Acute Rheumatism ...	2	Heat Stroke	1
Acute Lymphangitis ...	2	Dyspepsia	1
Bronchitis	2	Bursitis	1
Beri Beri	2	Urticaria	1
Mastoid	1	Enteritis	1
Alcoholism	1	Hæmorrhoids	1
Ruptured Eye Ball ...	1	Otorrhœa	1
Fibroma Foot ...	1	Soft Chancre ...	1
Circumcision	1	Dislocated Shoulder ...	1
Extravasation of Urine	1	Amoebiasis	1

KING HARMAN'S WARD.

During the year 105 Patients were admitted to King Harman's Ward. 82 were delivered, 7 had false pains, and 16 had complicated pregnancies.

Of the 82 labour cases—53 were normal and 28 abnormal.

The abnormal cases were made up as follows :—

Case.	No.	Remarks.
Forceps	10	8 children born living and 3 dead born ; one twin birth.
Post Partum Eclampsia	1	—
Premature Labour	3	One child died in Hospital.
Premature rupture of membranes	1	—
Brow	1	Forceps delivery—as a face—living child.
Breech	2	One impacted—both still-born.
Prolapsed funis	1	Delivered by version—still-born.
Footling	1	Dead born.
Still-births	5	One of them a twin.
Dead born	2	—
Craniotomy	1	Maternal death—Protracted Labour.

In this list no case has been counted twice. The term dead born is used in this list to designate a child that could not possibly have been lost in birth, but had obviously been dead in utero for some time prior to birth, as evidenced by skin peeling, maceration, and even commencing decomposition.

A great number of cases of still birth are due to protracted labours outside, brought to Hospital at the last minute.

Of the 82 labour cases, 36 were primiparæ—and out of the 10 forceps cases 8 were primiparæ.

The average stay in Hospital of each patient was $3\frac{1}{4}$ days, the day of admission and of discharge being counted as one day.

The morbidity of the patients delivered in the Ward cannot be given, as their stay in Hospital after delivery is very brief, usually not more than from 24 to 48 hours.

There has only been one case of Ophthalmia Neonatorum in the Ward during the year. No special prophylactic measures are used as a routine—the newly born child only having its eyes cleaned with Boric lotion.

The Complicated Pregnancies were made up as follows :—

Case.	No.	Remarks.
Ante Partum Eclampsia ...	1	Died undelivered.
Ante Partum Haemorrhage ...	2	One left Hospital relieved ; the other delivered.
Abdominal Colic	1	—
Malaria	3	All treated with Quinine and left Hospital with uninterrupted pregnancies.
Incomplete Abortion	7	Uterus emptied digitally or with curette.
Complete Abortion	2	—
Morbus Cordis	1	Labour induced—still-born child—mother died suddenly on 2nd day.

N.B.—All the Complicated Pregnancies treated in Hospital are not mentioned in this list, as this only deals with King Harman's Ward, and some such cases are treated in the general wards of the Hospital.

(Signed) E. J. WRIGHT,
M.O. in charge of King Harman's Ward.

NURSING HOME.

Owing to the continuance of the War and also to the inadequate accommodation provided for the sick in the old Nursing Home (Centenary House), it was found necessary, about the middle of July, to occupy a more commodious building.

With His Excellency's approval, the Rest House, which was completed in 1915, was handed over to the Medical Department, and, after a few minor alterations had been made, was opened on the 25th July as a Government Nursing Home, and a convenient double bungalow was also placed at the disposal of the Nursing Sisters, and this enabled them to enjoy undisturbed rest during the time they are off duty. I attach a Plan of the building, showing the different Wards, etc.

During the year the following Medical Officers were in charge of the Wards :—

Dr. Mayer, S.M.O.
„ E. W. Wood-Mason, Medical Officer.
„ J. Y. Wood, Medical Officer.

Miss Appleton, Senior Nursing Sister, went on leave, when Miss Littlewood acted as Senior Nursing Sister-in-Charge.

Miss Robinson returned from leave on the 11th May.

During the year under review, 138 patients were admitted, as against 72 in 1916, showing that the transferring of the Home to a much larger building was amply justified. Of those admitted were :—

Naval Officers and Ratings ...	44
Colonial Officials	62
Non-Officials	32
	138

Return of diseases treated is attached.

There were four deaths, giving a mortality of 2·89 per cent.

Causes of death :—

*Appendicitis	1
*Blackwater Fever	1
*Subtertian Malaria and Complication	1
*Influenza and Bronchitis	1

Invaliding, 2 :—

†Glaucoma	1
*Appendicitis	1

† Official. * Non-Official.

NURSING HOME RETURNS, 1917.

THE FOLLOWING TABLES SHOW THE NATURE OF THE WORK DONE DURING THE YEAR.

TABLE A.

Admissions.

Diseases treated.	Officials.	Non-Officials.	Royal Navy.	Total.
Malarial fever	19	17	11	47
Blackwater fever	1	2	—	3
Dysentery Amœbic	9	1	—	10
Hemiplegia	1	—	—	1
Alcoholism	—	1	—	1
Gastritis	4	—	1	5
Pneumonia	—	—	1	1
Jaundice	1	—	—	1
Hepatitis	1	1	—	2
Bronchitis	1	1	—	2
Abscess	—	1	—	1
,, Ischio-Rectal	1	—	2	3
Neurasthenia	—	1	—	1
Appendicitis	—	2	5	7
Nephritis	1	—	1	2
Syphilis	—	—	8	8
Compound Fracture	1	—	—	1
Other Injuries	2	1	3	6
Other Diseases	20	4	12	36
Total ...	62	32	44	138

TABLE B.

Deaths.

There were four deaths.

No.	Status.	Cause of Death.	Remarks.
1	Non.Official	Influenza Bronchitis ...	Died within 13 hours of admission from ship in harbour.
2	Non-Official	Subtertian Malarial Fever	—
3	Non-Official	Blackwater Fever ...	—
4	Royal Navy	Appendicitis	Operation.

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NURSING HOME — FREETOWN.

SCALE.

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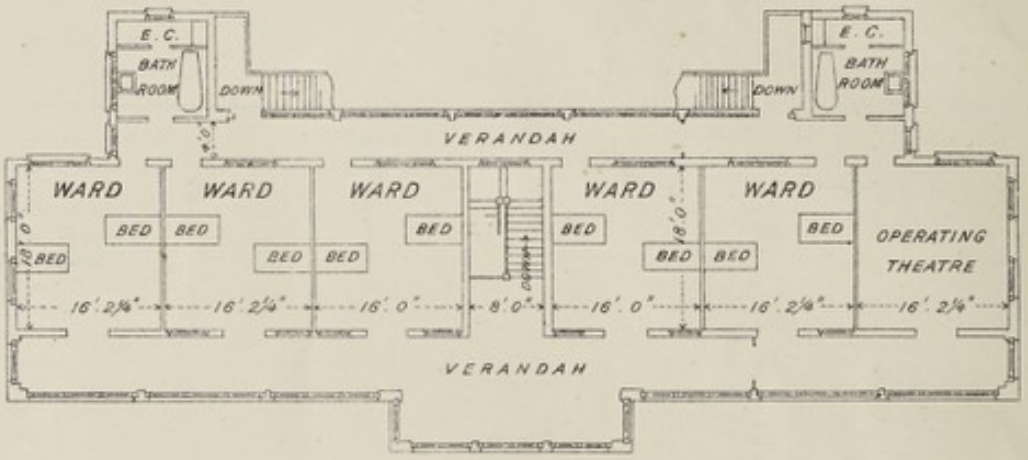
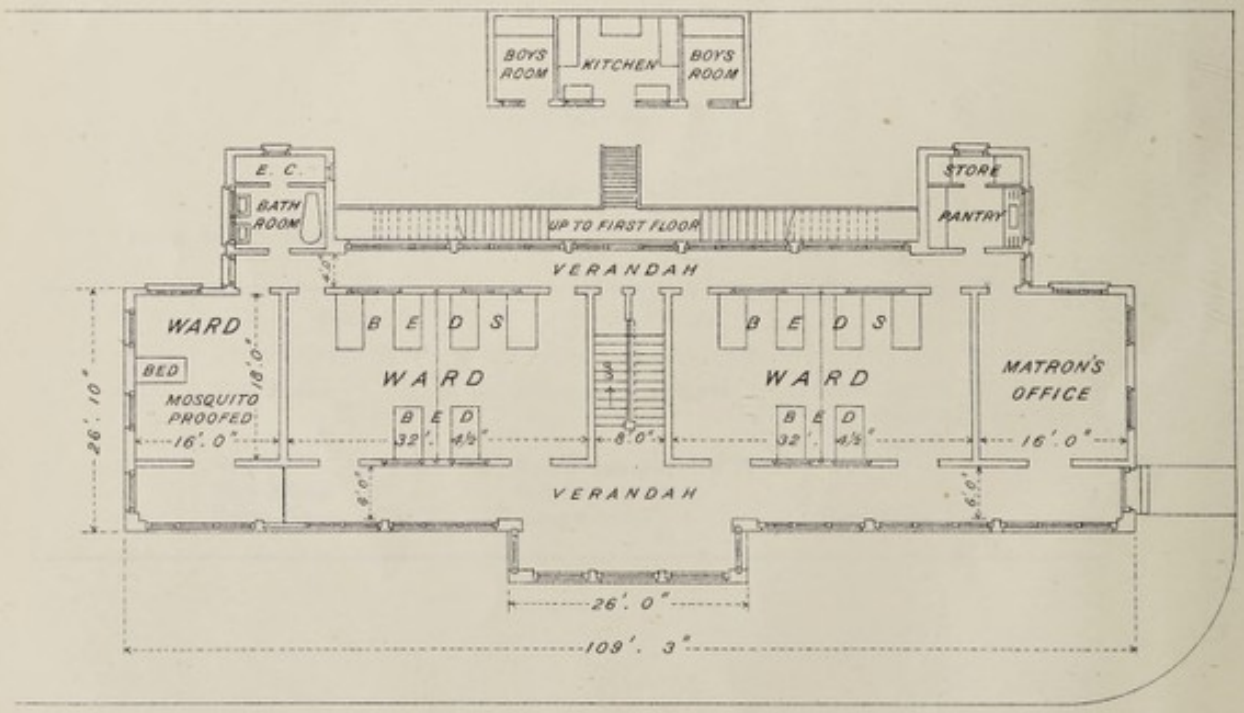


FIRST FLOOR PLAN.



GROUND FLOOR PLAN.

WATERLOW & SONS LIMITED, LONDON WALL, LONDON.

DRAWING Nº A 1072.

ANNUAL REPORT ON THE LABORATORY, COLONIAL HOSPITAL, FOR YEAR ENDING DECEMBER 31ST, 1917.

Dr. W. A. Young was in charge during the first eight months of the year, while Dr. J. Y. Wood took control during the last four.

Mr. J. T. Roberts performed the duties of Laboratory Assistant.

During the year Freetown became a Naval Base, and the W.A.M.S. has had the honour of looking after most of the naval sick. Consequently a fair amount of material has been obtained from European sources.

All the prison examinations, except urines, are made in the Hospital Laboratory, and so the results are put in this Report and not in the Prison Report.

Under the title " Nursing Home," only European patients are referred to.

At present the M.O. in charge of the Laboratory has the Prison and Hill Station to look after, so that experiments which require one's whole time cannot be attempted. Perhaps when times are normal, better opportunities will be afforded for medical research in Sierra Leone.

BLOOD EXAMINATIONS.

	In-Patients.					Out-Patients.					Nursing Home.					Prison.					Grand Total.
Quarter.	1st.	2nd.	3rd.	4th.	Total.	1st.	2nd.	3rd.	4th.	Total.	1st	2nd.	3rd.	4th.	Total.	1st.	2nd.	3rd.	4th.	Total.	
Negative ...	143	144	249	151	687	45	49	57	32	183	4	2	3	20	29	2	5	26	33	66	965
Subtertian	15	36	64	21	136	31	30	66	5	132	—	2	4	7	13	1	2	3	3	12	293
Subtertian and Crescents	—	—	1	—	1	—	—	—	—	—	—	—	—	3	3	—	—	—	—	—	4
Crescents alone	—	1	—	5	6	—	—	1	1	2	—	—	—	1	1	—	—	—	—	—	9
Subtertian and Tertian	1	—	—	1	2	1	—	—	1	2	—	—	—	—	—	—	—	1	—	1	5
Tertian ...	3	2	2	3	10	2	2	—	—	4	—	—	—	1	1	—	—	1	—	1	16
Quartan ...	—	—	1	—	1	—	1	1	—	2	—	—	—	1	1	—	—	—	—	—	4
Trypanosomes	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

Total Blood Examinations ... 1,297.

Under the heading In-Patients—Subtertian—49 cases are Europeans, and in Out-Patients, 11 = 60.

Notice increase in numbers during 3rd quarters when the rains are on.

As has been noted formerly, Subtertian Parasites are the commonest, being found in 22·6 per cent. of the bloods examined. It is rather interesting to note that there were only 14 cases of malaria in the prison. As there were 276 prisoners taken as a daily average, this is somewhat surprising. It may possibly be explained by the fact that there are no children in the prison, and that the Anopheles cannot, or does not, fly the distance between its breeding haunts and the prison cells. Quinine is not given either, unless the prisoner is being treated for Malaria. Of course, the native undoubtedly possesses a high immunity to Malaria, but if he is severely bitten he would quickly show signs of fever. Personally, I have rarely seen an Anopheles in the prison. The case of Trypanosomiasis came from Konakry. The Trypanosome was of the Gambiense type.

Red and White Cell Counts.—These were made when necessary. In the case of a Leucocyte Count a differential count was always made at the same time.

Of particular interest is the Leucocyte Count in a case of Emetin poisoning, due to prolonged treatment after a severe attack of Amœbic Dysentery.

His average of three counts, taken at a week's interval, was :—

Neutrophile Polymorphs	=	30·9 per cent.
Eosinophiles	=	43·0 „
Lymphocytes	=	18·5 „
Large Mononuclears	=	5·8 „
Transitionals	=	1·8 „

As far as could be ascertained this patient harboured no Helminthic parasites.

The Hæmoglobin percentage was 75 per cent.

Blood of Cattle.—Blood smears from four bullocks in the Sanitary Department were examined and two found infected with Trypanosoma Congolense.

EXAMINATION OF FÆCES.

Name of Parasite.	In-Patients.	Out-Patients.	Prison.	Nursing Home.	Totals.
Ascaris	130	9	61	—	200
Ankylostome	35	6	71	—	102
Trichuris trichiura	11	1	10	—	22
Ascaris and Ankylostome	24	—	145	—	169
Ascaris and T. trichiura	9	—	2	—	11
Ankylostome and T. trichiura	6	—	5	—	11
Asc. and Ank. and T. trich.	6	—	10	—	16
Amœba and histolytica and Cysts	202	23	166	8	399 }
A. histolytica associated with Ank., Asc., T. Mesinli or Taenia, &c.	12	4	38	—	54 } 453
Tænia Saginata	7	1	9	—	17
Tetramitus Mesnili (Wenyon)	54	2	21	—	77
Cercomonas and T. Mesnili	—	—	6	—	6
Balantidium	—	—	3	—	3
Balantidium and Ascaris	—	—	1	—	1
Lamblia	3	—	9	1	13
Blastocystis hominis	7	—	21	—	28
Strongyloides larva	34	—	3	—	37
Strongyloides and Ascaris	9	—	13	—	22
Negative	540	33	301	26	900

Total Examinations made ... 2,088.

Whereas the Ankylostome used to be rather more frequently seen than the Ascaris, the reverse is the case this year. It may be accounted for, probably, by the scarcity of Santonin and the inefficacy of other attempted remedies.

The very high number of dysenteric slides seen is noteworthy. Only 11 out of the 453 specimens came from Europeans. T. Mesnili is becoming very common, and although it does not seem very pathogenic, it causes severe diarrhœa at times.

As far as I am aware, this is the first occasion this organism has been definitely recognised in this Colony.

URINES.

	Nursing Home.	Out-Patients.	In-Patients.	Total.
Negative	9	61	124	194
Trace of Albumen	12	25	146	183
Cloud of Albumen	18	38	280	336
Abundant Albumen	5	31	151	187
Sugar	1	—	2	3
Bile	2	—	1	3
Microscopic examination of some of above gave :—				
Pus	2	27	55	84
Casts	2	3	10	15
Amœbae	—	1	2	3
Gonococci	—	5	4	9
Blood Cells	—	1	1	2
TOTAL				1,019

The urines of the prisoners are all examined at the prison, only special cases being investigated at the Colonial Hospital.

Of such 2 specimens showed Schistosoma hæmatobium.
8 „ „ Granular casts.
2 „ „ Amœboid cells (dead, no blood, etc.).

The high percentage of specimens showing presence of albumen is again noteworthy.

Sputum.—One hundred and eighty-two specimens of sputum have been examined, and so far no case of bronchial spirochætosis has yet been observed. There must be a fair proportion of the population suffering from pulmonary tuberculosis, since 34 out of 182 samples are infected with tubercle bacilli. With a rare exception, it is not possible to have specimens from the same patient in different years, as the course of the disease is very rapid. There is never any difficulty in spotting the bacillus, as they are so numerous.

	Nursing Home.	Out-Patients.	In-Patients.	Prison.	Total.
Negative	3	60	63	17	143
Tubercle Bacillus	—	22	10	2	34
Pneumococcus...	—	1	4	—	5
TOTAL					182

Microfilaria.—No special examination has been made for Microfilaria this year. Only in particular cases have they been looked for.

Rats.—These are caught in wire-cage traps, and must be brought alive to the Sanitary Department before payment can be made. Traps are set in all parts, wharves, stores, Government sheds, etc.

This year Epimys or Mus rattus and Epimys norvegicus or Mus decumanus have been caught in about equal numbers. One rat a week was examined until November, when, owing to the proximity of plague at Dakar,

it was thought advisable to examine the worst looking one of the captures each day. A spleen smear is also examined. Fortunately, so far, nothing of the nature of plague bacilli have yet been seen. Xenopsylla cheopis is the usual rat flea found.

Water Analysis.—The Freetown water supply is examined chemically and bacteriologically every quarter. A special analysis was made at the request of the Admiralty and War Office in July. The water was found quite wholesome. This is an average result of these analysis :—

Turbidity	Nil.
Odour	Nil.
Reaction	Neutral.
Colour	Nil to faintest blue-green.
Free Ammonia ...	0·0025 parts per 100,000.
Albuminoid „ ...	0·0008 „ „ „
Chlorine	Negligible.
Oxygen absorbed ...	0·03 parts.
Nitritis	Nil.

Bacteriologically no member of the colon group has been found. From one sample of water a bi-polar staining gram positive organism was grown on Mackonkey's medium. Its effect was tested on a rat by injecting a 10 million living vaccine. Beyond 24 hours malaise the rat suffered nothing at all and is still alive. This organism did not ferment lactose nor saccharose. In Glucose medium there was production of acid. No gas. On Drigalski-conradi medium the colonies were blue. Three samples taken from ship's tanks were chemically analysed; also five samples from Protectorate or Sherbro wells.

Samples from up-country cannot be bacteriologically examined, as they are too old on arrival.

Results.—

3 Ships' samples ...	=	Sodium and other chlorides in excess.
2 Well „ ..	=	Condemned.
1 „ „ ...	=	Wholesome.
2 „ „ ...	=	Wholesome but peaty.

Pus.

Negative Examinations ...	=	24.
Gonoccocci present (2 pus from eye)	=	13 (1 a specimen from a boy 15 years old).
Staphylococci only ...	=	2.
M. Catarrahalis	=	1.
Liver pus (Amœbic) ...	=	5.
(Negative) ...	=	1.
		46

Post-mortems.—During the first quarter of the year, a portion of the commenced new hospital was made into a suitable mortuary. This was very necessary, as the old one was not altogether sun-proof, exceedingly hot and too close to the wards.

Thirty post-mortem examinations have been made, and although not many reveal much that is interesting, the following are details :—

(*a*) Three cases of Yellow Fever, all Europeans.

(1) = Typical Text Book description.

(2) = Typical Text Book description and complicated by pneumonia.

(3) = Diagnosis only revealed after death. Only ill for four days. Fatty degeneration of the liver, and stomach had ecchymosed patches and black vomit.

(*b*) Two cases of phthisis pulmonalis, the second complicated by severe infection with ankylostomes and advanced amyloid disease of liver and kidneys.

(*c*) Rupture cardiac vein into pericardium. Lungs congested. Large and small gummata in liver.

(*d*) Two cases fracture-dislocation of servical vertebræ.

(*e*) Cardiac failure—obstructed labour—impacted brow presentation. This woman was brought into Hospital after having been treated with "native medicine" for over 24 hours. She died within an hour of admission.

(*f*) Malarial Fever. This European was brought in dead from a steamer.

(*g*) Status epilepticus (?) Young native girl about 20 years. Had suffered from hysterical attacks and died suddenly at the end of one of them. Was not unconscious. No suggestion of epilepsy. P.M. showed no organic lesions—no signs of poisoning—no ascaris—brain normal, except for slight venous engorgement. There was, however, marked increase in the lymphoid tissue at the root of the neck and mediastinium, and a large thymus gland was present.

(*h*) Acute peritonitis—gangrenous appendix. A European.

(*i*) Tuberculosis of lungs and pericardium. Hæmorrhage into lungs.

(*j*) Gumma aortic wall—rupture—hæmopericardium. This native also had pneumonia and extensive amœbic ulceration of bowel.

(*k*) Two cardiac failures; (1) fatty degeneration; (2) fusiform dilatation of ascending aorta.

(*l*) This native had been born without a left leg, and in its place was a small appendage about 3 inches long. He came into hospital suffering from urinary trouble, and died of uræmia. P.M. revealed a double pyonephrosis with practically no kidney tissue left—huge thickened and dilated ureters and a large thickened and salt-coated bladder. (*Vide* photo.)

The bony pelvis was well developed on the right side, but on the left was a total absence of the bony pubis and very poor development of the ilium. There was no left acetabulum. (*Vide* photo.)

The appendage consisted of two small bones—the proximal had a rounded head and covered with cartilage. It was attached by a fibrous capsule to the muscle sheath. The distal bone was not unlike a miniature tibia. There was no evidence of a fibula or tarsus, and there was no joint or fibrous union between the two bones. The external iliac artery could not be found, the common iliac simply passed on as the internal iliac artery.

(*m*) Shock—result of fractured pelvis and crushed organs.

(*n*) Two lobar pneumonia.

(*p*) Fracture base skull.

(*q*) Asphyxia due to inhalation of vomit—fatty and cirrhotic liver. Alcoholism.

(*r*) Boy—5 years—brought in unconscious and in convulsions. As soon as death ensued ascaris worms began to appear from the nose and mouth. P.M. showed an empty stomach and intestine except for the presence of bunches of entwined nematodes. They were to be found from the cæcum to the mouth. No ankylostomes were seen. A total of 48 counted. Death evidently due to mechanical obstruction and toxæmia.

(*s*) Laceration of brain, due to depressed fracture roof of skull, and also fractured base. (*Vide* photo.)

(*t*) Cardiac failure—cirrhosis liver and pneumonia.

(*u*) Hemiplegia.

(*v*) Syphilitic aortic valve disease.

(*w*) Heat stroke.

(*x*) Basal meningitis.

(*y*) Alcoholism—accelerated by tropical sun.

So far I have never seen a case of appendicitis in a native. As a rule the appendix is usually a long one, and in all the cases examined always patent. Constipation is very common, however. The vegetarian nature of their diet may account for the absence of appendicitis inflammations.

Miscellaneous.—

(1) Leprous material—6 specimens—bacillus of leprosy found only twice.

(2) Widal reaction—2 negative—2.

(3) Scrapings from chancres—3. Treponema pallidum found by dark ground illumination—1.

(4) Staphyloccal vaccines were made when required and were useful in curing the condition being treated. Number made—4.

(5) " A case of Urinary Amœbiasis with Cystitis " was described in the " Journal of Tropical Medicine and Hygiene," 1917, July 2nd, Vol. 20, No. 13, by Dr. E. J. Wright. Dr. Young describes the amœbæ :—

> Average size, 20-25μ; variation 10-40μ. Ectoplasm and endoplasm easily distinguished. Vacuoles and ingested erythrocytes. Nucleus round—vesicular—nuclear membrane distinct with interrupted chromatin masses. Motility sluggish. Cysts with 1, 2 or 4 nuclei, diameter 20-25μ.

(6) Dr. E. J. Wright, while examining a urine of a private Blackwater Fever case, found the specimen swarming with prowazekia. The protozoa conformed more to the " Asiatica " type, and the urine had just been freshly voided.

(7) Two sera tested for agglutinative reaction with M. Melitensis—negative.

(Signed) W. A. YOUNG,
Medical Officer,
LABORATORY.

22*nd January*, 1918.

ANNUAL MEDICAL REPORT ON THE FREETOWN PRISON FOR THE YEAR ENDING DECEMBER 31st, 1917.

Dr. W. A. Young was in charge of the Prison during the first eight months of the year, and Dr. J. Y. Wood during the last four months.

Mr. Nylander has been Head Dresser and Dispenser throughout the year.

Health of European Officers.—One placed on Sick List on two occasions for a short period.

Native Officials.—74 treated, 16 being sent to the Colonial Hospital; 3 were invalided and one died.

IMPROVEMENTS.

All the Mosquito-Proof Wire Gauze for the windows and doors of the Hospital and Cook House has been renewed.

At the end of last year the new Cook House was completed, and has proved a great success. It is arranged on the Home Prison System. Now the Foo-foo is thoroughly cooked, and there are no complaints about it causing Dyspepsia as it used to do. There is a Cook Warder in charge, and the prison assistants are examined regularly to prevent any chance of their being Amœbic Cyst carriers.

The Principal Medical Officer's shower bath arrangement gives satisfaction, and does away with the tendency the Prisoner has to drink his bath water.

SANITATION.

The Buildings and Yard have been maintained in an excellently sanitary condition, and the Superintendent and Assistant Superintendent are to be thanked for their help and hearty co-operation.

STATISTICAL RETURN FOR THE YEAR 1917.

In-Patients.

In hospital at end of year 1916	14
Admitted during 1917	340
Total	354

	March Quarter.	June Quarter.	September Quarter.	December Quarter.	Total.
Admitted	66	87	94	93	340
Cured	38	48	71	66	223
Relieved	12	30	12	30	84
Died	6	6	8	10	30
Under observation and Treatment.	58	94	293	177	622

In Hospital at end of year 1917 17

CAUSES OF DEATH.

No.	Cause.	Observation.
3	Chronic Amœbic Dysentery	Post-mortem, 1 showed extensive sloughing whole large gut.
3	Cardiac failure, due to severe anæmia from Ankylostomiasis.	—
1	Cardiac failure, due to Gonorrhœal Rheumatism	—
1	Cardiac failure, due to Tertiary Syphilis ...	—
1	Cardiac failure, due to Polyneuritis	Case of lime poisoning and ground glass.
1	General Debility	Old grey-haired man over 70, only lived a few days after admission.
1	Cerebral Syphilis	—
2	Senile Decay	—
3	Chronic Nephritis	—
1	Syphilitic Nephritis	—
1	Cerebral Thrombosis	—
9	Valvular Lesions of Heart	—
2	Acute Lobar Pneumonia	—
1	Syphilitic Arterio-Sclerosis	—

Out-Patients.

New cases 1,301
Subsequent attendances 817

Daily average number of prisoners :—

Males 268
Females 8

Total 276

Total Prisoners in Jail during 1917 1,135
Weights of Prisoners ranged from 72 lbs. to 174 lbs.
Average weight, 127 lbs.

	New comers examined.		Remands and Trials examined.		Examined for Cells.	Examined for Corporal Punishment.	Execution.
March Quarter ...	180	18 Females	38	1 Female	42	9	2
June Quarter ...	190		55		48	1	1
September Quarter	185		61		70	1	—
December Quarter	200		56		78	3	—
Totals ...	773		211		238	14*	3

* 4 found physically unfit.

Vaccinations 351

Most frequent diseases.—

Valvular affection of heart, Gonorrhœa, Syphilis—disease of skin, Dysentery, Ankylostomiasis. Admitted for Dysentery, 137, of which only 19 were old recurrent cases. Varioloid (a new comer), 1; Chicken Pox, 2 cases; Leprosy, 6 (2 of these were executed); sent to Lunatic Asylum, 5.

Recommended for release on medical grounds, 4 (2 of which granted); Operations under general Anæsthetic, 2—Removal Tubercular glands of neck.

Post-mortem examination	4
Daily average number of sick in Hospital	22
Average number of days is Hospital	26

The Death Rate in Prison.

In spite of most determined and painstaking efforts, I regret to have to record that the number of deaths during the year under review reaches the figure of 30.

At first sight this figure seems high, but when viewed in the light of the following facts and figures detailed below, it will be speedily realised how easily this figure might have been doubled.

From a Sanitary point of view, except for the lack of Isolation Medical Cells, and these it is hoped to have built after the cessation of hostilities, nothing further requires to be done. This does not mean that no improvements could be made, *e.g.*, a wash-down closet system, electric light, etc.: what it does mean is that under existing conditions the Sanitation of Freetown Prison is as perfect as can be expected.

What, then, are the factors which contribute to this relatively high death rate? These factors are essentially external to the Prison, but nevertheless very potent.

The first and most important is the exceedingly low physical and physiological condition of the prisoners on their entrance to the Prison Yard.

During 1917, 773 prisoners and 113 Remands, who were later on found not guilty and discharged, making a total of 886, passed through the Prison gate, and were medically examined. Of these 334, or almost 38 per cent., shared between them 550 diseases.

The following list gives the details :—

Health found unsatisfactory on Primary Examination and on more detailed examination including Laboratory findings	334
Permanently placed on light labour	35
Permanently placed in Hospital or Isolation ...	22

LIST OF DISEASES FOUND ON ADMISSION TO THE JAIL.

Hydrocele (some are very large, and when combined with hernias simulate an elephantiasis scroti and quite incapacitate the owner)	12
Hernia	34
Venereal Diseases (in the active stage)	152
Amœbæ and their Cysts	118
Treated for Ankylostomiasis (this does not include the cases where the patient is in equilibrium with his parasite)	75
Treated for Ascaris (ditto)	66
Cardiac Valvular Affections	57
Leprosy (two were executed)	6
Tubercular Glands of Neck	1
Elephantiasis Scroti	3
Paralysis (including Facial, tabetic, etc.)	6
Pulmonary Tuberculosis	2

Ulcers and Skin Diseases, Cellulitis, etc. (necessitating isolation from fellow prisoners	17
Asthma	1
Total	550

In some cases one prisoner suffered from more than one complaint.

The following are some examples :—

1. Has served his 27th conviction; suffers from wasted limb, result of Infantile Paralysis, Mitral Regurgitation, Cirrhotic Liver, and Alcoholic.

2. Case of Inguinal Hernia, Albuminuria with a few granular casts left facial paralysis.

3. Elephantiasis Scroti, with large right Inguinal Hernia, Anæmic, numerous Ankylostomes, deep incised wound of left leg.

4. Boy of 15, Acute Gohorrhœa, Jaundice, Synovitis left ankle joint, Tetramitus Mesnili in stools; Undersized.

5. Double Inguinal Hernia, Double hydrocœle, Mitral Regurgitation.

It will be seen that "Venereal Diseases" occupies the premier place. It is scarcely necessary to say how vitally lowering these diseases are, and probably they account, partly, at any rate, for the low birth rate and high infantile mortality.

Occupying second place comes Amœbic Dysentery. There were 137 cases in the Prison this year, and of these 118 came into the Prison suffering from the Acute Disease itself, or were Amœbic Cyst carriers.

It is interesting to note that one of these new admissions was a baker by trade, and his fæces, on examination, showed a heavy infection of A. histolytica, which cleared up speedily with Emetine. He had been baking bread up to a few days before his conviction.

With the new cooking apparatus, all the food is sterilised, but that does not prevent flies infecting the food later on. These flies come from over the wall.

All round the Prison Yard and elsewhere are natives' houses and gardens, each with their cess-pit only separated by porous laterite from the well.

Flies can eat up Dysenteric material from the cess-pit, while the native drinks water infected with the same matter.

It is scarcely to be wondered at that Amœbic Dysentery is hard to control.

Helminthic infections are a well-known cause of debility, and are exceedingly common. Corresponding Anæmia is very high. Twenty red cell counts, taken as they came, gave counts as low as 2,300,000, and as high as 5,700,000. The average was 4,022,500.

The Hæmoglobin percentage in the same cases averaged 70 per cent.

Cardiac Affections:—

Syphilitic Aortic Valve Disease is only too common, but the etiology of the mitral valve lesions is not at all clear. Acute rheumatic fever, as seen at home, is rare, if it occurs at all in Freetown. Personally, I have never seen a definite case yet; mitral lesions are not at all uncommon. As seen at post-mortems, however, the valves usually appear stretched, and do not have the eaten away appearance or warty vegetations of the rheumatic heart. It is different in the case of Gonococcal Endocarditis, which is not rare. It has not been definitely shown that the Pneumococcus has any effect on the cardiac valves of natives.

Probably one cause of the mitral valve lesion is the combination of strain, due to carrying heavy loads on the head, and the fatty degeneration of the heart muscle caused by anæmia and toxæmia of helminthic infections. This combination dilates the heart, and, being fatty, compensation is difficult, and consequently the valves are stretched and regurgitation ensues.

One might go into details about other matters, *e.g.*, length of sentence and its effect on the mind in disease, lack of natural sexual indulgence and consequent self-abuse, but sufficient, I think, has been written to show how poor the material is one has to work on, and if one considers carefully it will be realised that the death rate is not high.

Methods adopted to deal with this state of affairs.

Each prisoner convicted or remand is stripped and examined in the ordinary way. If he appears healthy he is given a purge and isolated for 24 hours, so that his fæces may be collected. These are examined at the Colonial Hospital Laboratory. According to the findings the prisoner is dealt with. The list will be found in the Laboratory Report. If dysenteric he is kept isolated and treated until convalescent, when he is put in an Association Ward until he is fit to go to light labour.

This isolation method prevents possible spreading of the disease and malingering.

All venereal prisoners are isolated, too, but in their case they are allowed out for baths and exercise.

This system of isolation seems the only possible one, and has certainly worked well.

The drinking water is boiled and kept in locked cisterns, which have taps. This prevents possible contamination by prisoners putting their cups, and incidentally their questionable clean fingers, into the water.

Cardiac cases go straight into Hospital, and usually require long period of rest.

It has been found possible only to treat Ankylostome cases that are very severe.

I have the honour to be, Sir,

Your obedient Servant,

W. A. YOUNG,

Medical Officer i/c Prison.

January 15*th*, 1918.

ANNUAL REPORT FOR THE YEAR ENDING 31ST DECEMBER, 1917.

CLINE TOWN STATION.

By Dr. T. F. G. Mayer, S.M.O.

During the year under review, the following Medical Officers had charge of the Station :—

January to April—Dr. J. Y. Wood.

May to October—The Honourable Principal Medical Officer, Dr. E. H. Tweedy.

November to December—The Acting Provincial Medical Officer, Dr. T. F. G. Mayer.

Dispensers Betts and Wyse performed duties from the beginning to the end of the year.

Public Health.—The health of the officials was not so good, the numbers admitted to the Nursing Home and Colonial Hospital being higher than during 1916. Malaria, Dysentery and, amongst children, Whooping Cough were the diseases specially prevalent. A few cases of chicken-pox were dealt with.

European Officials.—There were fifty-six European Officials employed at Cline Town and an equal number (56) placed on the sick list. A few were sent direct to the Nursing Home and are, therefore, not included in this list. Malaria Fever, as always in the past, was the disease most common amongst this class of officials. There was one fatal case of Yellow Fever, and one case of invaliding.

Total number of Official (cases) on sick list during the year, 56.

Total number of days spent on sick list during the year, 408.

Native Officials.—There were 19 West Indies and 37 permanent native officials with 403 daily wages workmen, giving a total of 459 employees at Cline Town Railway Department. The greater part of these, residing away from Cline Town, were under the Medical Officer only during working hours. Other officials of other departments, residing within the Cline Town medical district, received treatment at this dispensary, which makes it difficult to arrive at even an approximate number of all officials under the Medical Officer. Constipation, Malarial Fever, Myalgia and injuries were the common ailments.

There was one case of death from Phthisis among the clerks of the Store Branch.

Total number of Officials on sick list during the year, 201.

Total number of days spent on sick list during the year, 807.

Police.—The Staff at Cline Town consisted of seven men, and the attendance at the dispensary during the year was almost nil.

Non-Official Native Population.—Patients who attended and were treated at the dispensary came, as in previous years, not only from various parts of the town, but from other villages and towns of the Colony and Protectorate.

Sanitation.—Routine sanitation was steadily carried out. A hut for isolation and observation was recommended. No improvement has been made in the arrangements for drinking water in the works.

Vaccination.—Fifty-two successful cases were performed during the year by the Assistant Vaccinator of this station.

Out-Patients.—There were 1,710 cases of officials and workmen treated, and 3,717 cases of paupers, with a total of 5,969 subsequent attendances of all classes, showing an increase over 1916.

(Signed) T. F. G. MAYER,
Senior Medical Officer.

CLINE TOWN.

FROM THE MEDICAL OFFICER, KISSY (DR. W. F. CAMPBELL),

TO

THE HONOURABLE THE PRINCIPAL MEDICAL OFFICER.

SIR,

I have the honour to submit the Annual Report of the Kissy Institutions for the year 1917.

The following officials visited the Institutions during the year :—

The Hon. the Principal Medical Officer, Dr. Tweedy, and Dr. W. Allan, Medical Officer of Health.

The Staff consists of :—The Medical Officer, one Medical Dispenser (2nd Class), five Female Nurses, one Keeper, one Assistant Keeper, two Dressers, six Attendants, four Temporary Attendants, three Cooks, one Laundress, and twelve Labourers.

Changes in the Staff.—I was in charge of the Institutions throughout the year. Ernestine Fyne was promoted, 1st Class Female Nurse, Lunatic Asylum, *vice* Harriet Peters, deceased; Mary George promoted 2nd Class Female Nurse, *vice* Ernestine Fyne, promoted; Borkari appointed Cook, *vice* William Cole, deceased.

Public Health.—There has been an outbreak of Chicken-pox in the village during the year, but the disease successfully terminated owing to the measures adopted.

There were many cases of Malaria, Dyspepsia, Syphilis, Debility, Tuberculosis, Diarrhœa, Ulcer and Dermatitis during the dry season.

During the rainy season, the prevailing diseases were : Malaria, Amœbic Dysentery, Dysenteric Diarrhœa, Rheumatism and Bronchitis.

Whooping Cough of a severe character was prevalent among children during the Harmattan season. There were many cases of Intestinal Parasites throughout the year.

Native Officials.—Native Officials on the sick list, 114.

Number of days on sick list, 736; an average of 6½ days.

Two deaths. No invaliding.

Civil Police.—Police on sick list, 4.

Number of days on sick list, 25; an average of 6¼ days.

The general health of the native officials on a whole has been fairly good.

Lunatic Asylum.—Remaining at the beginning of 1917, 102 males and 34 females. Admitted during the year, 27 males, 15 females. Total treated, 178; a decrease of 14 as compared with 1916. Discharged, 16; absconded, 1; died, 23; remaining at the end of the year, 138.

Causes of death were: Dysenteric Diarrhœa, General Paralysis of the Insane, Exhaustion, Asthenia, Acute Nephritis, Senility, Dysentery, Bright's Disease, General Debility.

Coroner's Inquest was held on each death and the verdict was natural cause.

There were no cases of accident during the year. There were no epidemics amongst the inmates during the year.

Reasonable lunatics assist in sanitary work and attend to the garden. Washing and mending of the clothes are done by the female lunatics who are lucid and physically fit; male and female lunatics are always in charge of reliable attendants.

Female Incurable Hospital.—There were at the beginning of the year 35 patients; during the year 83 patients were admitted, making a total of 118. There were 53 discharges and 24 deaths, remaining in Hospital at the end of 1917, 41. The deaths were due to Exhaustion, Debility, Septicæmia, Tuberculosis, Dysentery (Amœbic), Syphilitic Exhaustion, Acute Nephritis, Senility.

Male Incurable Hospital.—At the beginning of the year there were 73 patients, 212 were admitted, during the year 119 were discharged, 82 died, remaining in Hospital, January 1st, 1918, 84. The deaths were due to Syphilitic Exhaustion, Dysenteric Diarrhœa, Pulmonary Tuberculosis, Nephritis, Senility, Paralytic Exhaustion, Ascites. The death rate in this Hospital is always high, owing to the hopeless condition in which many of the cases are admitted.

Leper Ward.—There were 4 lepers at the beginning of 1917; during the year 4 were admitted, 4 absconded, remaining at the end of the year, 4.

Infectious Disease Hospital.—At the beginning of the year 1917 there were 4 cases of Small-pox. During the year 44 males and 11 females were admitted with Small-pox, making a total of 47 males and 12 females; 36 males

and 7 females were discharged; 8 males and 5 females died; remaining at end of 1917, 3 males.

Huts.—Remaining at the beginning of 1917, 3 cases of Chicken-pox; 37 males and 7 females were admitted; 39 males and 8 females were discharged; remaining at the end of 1917, nil.

Dispensary, Kissy.—New cases, 1,407; old cases, 1,757; total, 3,164; an increase of 38 over 1916.

Wellington.—New cases, 410; old cases, 422; total, 832; an increase of 47 over 1916.

The prevailing diseases were: Syphilis, Rheumatism, Whooping Cough, Bronchitis, Dyspepsia, Diarrhœa, Constipation, Ulcer, Intestinal Worms, Malarial Fever, Debility, Neuralgia, Amœbic Dysentery, Pulmonary Tuberculosis, Caries of Teeth, and Lumbago.

Infectious and Epidemic Diseases.—During the year there have been no infectious and epidemic diseases amongst the inmates, only four cases of Chicken-pox were noticed amongst the inhabitants of the village.

Meteorology.—The highest maximum shade temperature registered was 95 on the 17th January, 1917, and the lowest minimum shade temperature registered was 66 on the 17th November, 1917.

The rainfall for the year was 107·96 inches, a decrease of 0·66 inches, as compared with 1916.

(Signed) W. F. CAMPBELL,
Medical Officer.

KISSY.

BONTHE.

REPORT BY DR. J. M'CONAGHY, W.A.M.S.

SIR,

I have the honour to forward the Annual Medical Report on this Station for the year ending December 31st, 1917.

The Staff of the Hospital consists of one Medical Officer, one First-Class Dispenser, one Male Nurse, and one Female Nurse. A Cook, a Laundress, and four Labourers are also constantly employed.

Dr. Mayhew was in charge in the beginning of the year, and was relieved by Dr. C. H. Allan on February 10th, 1917.

Dr. Allan was relieved by me on September 10th, 1917.

In the beginning of the year ther were three European officials resident in Bonthe, viz.:—the District Commissioner, the Medical Officer, and the European Foreman of Public Works.

One European Official was invalided for Blackwater Fever.

The number of Native Officials is twenty-nine; of these fifteen have been on the sick list during the year. One Native Official was invalided, and one died. The cause of death was Pleurisy.

The health of the non-official Europeans has been, on the whole, good. There was one death, due to Chronic Cardiac disease.

The total rainfall was 132·17 inches, which is 13·57 inches less than in 1916.

There were 4,732 Out-Patients treated in the Hospital during the year.

The prevalent diseases were Malaria, Digestic Diarrhœa, Ulcers, Bronchitis, Rheumatism, and Skin Complaints.

The number of In-Patients was 225 (including 18 cases treated at the Infectious Diseases Hospital at Bonthe-Bai).

The prevalent diseases were Syphilis, Small-Pox, Broncho-Pneumonia, and Ankylostomiasis.

There were 11 Mid-wifery cases, viz. :—

Normal deliveries	5
Abortion	4
Eclampsia	2

There were 18 deaths in Hospital during the year.

Thirteen major surgical operations were performed. Many minor operations were also performed, such as tapping of Hydroceles, Evacuating of Abscesses, Catheterization, etc.

The Medical Officer has visited York Island weekly and attended patients there.

Eighteen cases have been treated at the Infectious Diseases Hospital at Bonthe-Bai, viz. :—

Small-Pox ...	15	Chicken-Pox	3

All these cases have recovered.

Vaccinations.—1,046 persons were vaccinated in Bonthe and York Island. Of these 747 were successful, 93 unsuccessful, and 206 were not seen.

An Assistant Public Vaccinator has been appointed lately to patrol the Island.

I have the honour to be, Sir,

Your obedient Servant,

(Signed) J. M'CONAGHY,

Medical Officer, Bonthe.

January 26th, 1918.

MOYAMBA.

REPORT BY DR. M. C. F. EASMON.

(1) *Administrative.*—The following served during the year:—

Medical Officers: J. C. Murphy and M. C. F. Easmon.

Dr. Mayhew was employed on special Small-Pox work, January to April.

(2) Dispensers: S. B. Williams and M. P. Neville.

(3) Assistant Public Vaccinator: Abduli Hamara, and for a short time, Temporary Assistant Vaccinators Gooding and King.

(4) Sanitary Gang: Average number, 6.

Public Health.—The noticeable feature of the year has been the continuation of the outbreak of Small-Pox, which started in 1916, all over the District, and throughout the year, including the rainy season.

On the whole it was of a mild type, but several deaths were reported in the areas where it was most extensive, namely, the Yonnibannah and Cockboro (Shengoh) Chiefdoms.

The outbreak was more extensive in area than in previous year.

European Officials.—The majority of cases were due to Fever and Gastric troubles. The engine drivers at Boia suffered from the heat in April and May, and there was one case of Amœbic Dysentery there. No deaths and no invalidings to Europe. Three cases were sent down to the Nursing Home for treatment.

Total number of European Officials on Sick List	17
Total number of days spent on Sick List	68
Average number of days	4

Native Officials.—General average health at the Railway Compound, Boia, and Moyamba, good. There was one death due to Tetanus.

Commonest diseases were Rheumatic Affections and Fever.

Total number of Native Officials on Sick List	50
Total number of days spent on Sick List	329
Average number of days	6·58

Soldiers, Nil.

Police, i.e., Court Messengers:
Average health good. There was one death and one invalided.

Prisoners.—The general health of the prisoners has been good; there was no outbreak of any epidemic disease or Dysentery.

Non-Official Population (European).—Consists of Missionaries at Moyamba, Rotifunk and Myoso, and Traders at Mano, Yonnibannah, Makump, and Nabum.

No invalidings or deaths; general health good.

Non-Official Native Population.—Estimated population of Moyamba district, 36,000, approximate, but subject to great and frequent fluctuations. The commonest diseases treated were Rheumatic and Digestive disturbances. Small-Pox in the surrounding country.

Meteorological.—The rains continued until December. On August 17th 5·12 inches fell, a record for last seven years.

Hospital and Dispensaries.—The wooden dispensary building at Moyamba had a few minor repairs, and the mud-walled hospital building was re-thatched. New premises are badly needed. While the Carriers were at Mano a temporary branch dispensary, in charge of a 1st Class Nurse, was established at Mano.

Owing to illness among the dispensers, the new dispensary at Sembuhun was not opened, but had to be postponed till 1918. The commonest diseases treated were Rheumatic conditions, Fever, Digestive troubles, and round and tape Worms.

Total number of cases treated, 5,757. Operations, 11.

Scientific: Nil.

FROM THE MEDICAL OFFICER, BO (DR. W. O. TAYLOR),

TO

THE HONOURABLE PRINCIPAL MEDICAL OFFICER.

SIR,

I have the honour to submit the Annual Report for this Station during the year 1917.

Dr. Ward was in charge till the 8th of July, and was then relieved by Dr. Taylor, who remained till the end of the year. Dispenser P. J. John was relieved by Dispenser S. B. Williams on the 27th of August.

European Officials.—The average number of European Officials was fifteen; of these, ten reside at Bo, *e.g.*, six railway, four school; and at Mattru, Gerihun, Blama, Hangha, one Railway official each. There was also one Medical during the first half of the year.

There were two non-officials at Bo, three at Gerihun, and eight at Blama.

There were 27 European Officials on the sick list for a total of 188 days; three of them were sent to the Nursing Home, Freetown. Two invalidings. No deaths.

The chief cause of sickness was Malaria. Nine officials were on the sick list for 40 days suffering from Malaria. Eighteen from Boils, Dysentery, Gastric and Hepatic troubles, Blackwater Fever, for 148 days.

Native Officials.—There were 34 Native Officials on the sick list for 249 days. The chief diseases were Malaria, Bronchitis, Rheumatism, Constipation, and Digestive troubles. No deaths.

Out-Patients.—Sixty-six.

	1916.	1917.
New cases	2,026	2,639
Subsequent attendances	573	1,264
Total	2,599	3,903

In-Patients.—There were 55 patients admitted into the Hospital, with only one death, due to severe burns. The chief causes of disease amongst out and in-patients were Constipation, Boils, Rheumatism, Malaria, Digestive troubles, Bronchitis, Worms, Caries of Teeth and Venereal diseases.

Public Health.—The general health of the station and district for the past year has been, on the whole, very satisfactory.

Epidemics.—Only a single case of Small-pox was treated at Bo during the year. There was one outbreak of Chicken-pox at Bo School; 30 children were admitted into the Hospital. No deaths.

Special Diseases.—Syphilis is common, Gonorrhœa and soft chancres are a very common combination.

Black-Water Fever.—Six cases were treated during the year, three officials and three non-officials.

Bilharziasis.—The number of children treated amongst children of the Bo School was 14. A special report on this disease was forwarded separately during the early part of the war.

Operations.—There were two operations done during the year :—

(1) Amputation of little finger.

(2) Removal of pellets from gun-shot wounds. No deaths.

Kennema.—Kennema was visited as usual during the year under review. The Railway Quarters at Hangha, Blama, Gerihun and Mattru visited and found to be in very satisfactory condition.

I have the honour to be, Sir,
Your obedient Servant,
(Signed) W. O. TAYLOR,
Medical Officer,
Bo.

DARU—RAILWAY DISTRICT—1917.

II. Public Health.—The M.O., Daru, being more a Station than a District M.O., and having a large official (chiefly military) population to attend to at Daru, has had little opportunity for visiting his district except in the immediate vicinity. Also Daru, not being (as is usual where there is an M.O.) the seat of the local civil administration, there is not the same coming and going of natives, in connection with administrative work from distant corners. Occasionally natives from a distance come for operations, chiefly for treatment of injuries, etc., but not forming an appreciable percentage of population. The following returns, therefore, refer almost altogether to Daru Station, together with Railway Officials (Native) from a forty-mile section, and a few people who can afford to travel by train.

Rheumatism and Debility, from various causes, constitute the chief cause of illness. They probably are the common result, often, of indifferent health, following all the other diseases and privations, hunger, etc. Of these Malaria is the most prominent at least, and is always present. Dysentery and Gonorrhœa, and in present year, Small-Pox. (No symptoms of Filariasis, Trypanosomiasis, etc.)

Not many cases of Worms have come for treatment, but doubtless Ankylostomes are present in many cases without giving special symptoms. In former years Bilharzia was present, but this year I have not seen a case; it may, however, be present.

As is usual, there is more sickness in the wet season than in the dry season, but except Dysentery, which is more or less latent in dry season, there is not an increase in varieties of disease, Bronchitis probably in the beginning of dry season and Dysentery in wet.

As there is no registration of births, deaths, etc., relative mortality cannot be quoted with any certainty. The end of the wet season, being "the hungry time," there are usually more deaths then. Excepting for an epidemic of Small-Pox, the general health of the Station (no case of Small-Pox in Station itself) and District shows no apparent difference from that of former years.

(The doubling of the military population, Daru, including wives, children, etc., since 1914, shows an increase in cases, but this does not mean an increase in sickness in the district.)

Amongst the European Officials, almost entirely military, there has been a considerable amount of sickness, without any immediate serious results, but which, if continued, would lead to them. Most have been on the Sick List more than once, a few, five or six times, and the Colony has lost their services for a very appreciable number of days. One official, however, was sick from a disease (Mucous Colitis) which he already had in Europe.

The chief cause of illness was Malaria. (There was no Dysentery.)

Factors influencing health.—Some of the Officers had been through strenuous mental and physical strain, coming here from France or the Cameroons. Others had had short leave and were doing overtime.

Prolongation of rains up to very end of year.

Total number of European Official Cases on Sick List during year	42
Total number of days spent by European Officials on Sick List during year	288
Average number of European Officials who have been stationed in the District for periods of over one month ... ... about	24
Average number of European Officials stationed in District at any one time... ... ... about	12

The health of the Native Officials has been good, and is not different from former years. They have not had the same difference in occupation, leave or work, prolonged, or any factors influencing health detrimentally.

Total number of Native Official Cases on Sick List during the year	8
Total number of days spent by Native Officials on Sick List during the year	44
Average number of Native Officials, chiefly Railway, employed at any one time in District ... about	30

Soldiers.—The health of the Soldiers has, on the whole, been good, and is improving as they are now recovered from illnesses or debility contracted in Cameroons, etc. There are a large number of attendances for trivial cuts, abrasions. As they have regular payments and a Rice Store from which they

can purchase Rice during the hungry season (*i.e.*, food all the year round), and also good clothes, their general health is good.

Police.—There are no Police stationed here.

Prisoners.—There is no Prison.

Non-Official European Population.—About 14 at any one time.

Malaria.—The prevalent disease.

The health of the non-official Europeans has been much as usual. They have always spent longer periods in Africa than officials, so their general health was always affected adversely. The War conditions, therefore, has not added much to their health troubles. There have been no deaths and no invalidings to Europe. One case of Blackwater (Pendembu).

Non-Official Native Population.—For reasons given in opening paragraph (II. Public Health) the condition of health of district outside station is unknown, but except for the presence of a Small-Pox epidemic, which has not been severe, not attacking many in the towns, and killing or injuring very few of those attacked, the general health has been quite fair.

Rheumatism, Debility, Ulcers, fairly common.

Vital Statistics.—This being a sub-district or station within the Railway District, there is no way of estimating roughly, even, the population. (The population of the Railway District will be included in the M.O. Bo.'s Report, but it is placed at half a million.)

No birth or death-rate infant mortality kept.

V. Hospitals, Dispensaries, etc.—Including all cases (except trivial accidents or treatments by M.O. of European Officials in their or his quarters) the total treated amount to about 7½ thousand (new and subsequent attendance included in-patients, etc.) The prevailing diseases: Rheumatism, Malaria, Debility, Gonorrhœa, Yaws (of feet), Bronchitis, etc. There were no deaths in the Hospital.

There were very few operations (no applications). Some septic gun-shot wounds, ulcers, etc., were brought in from neighbouring towns, chiefly with a view to obtaining medical witnesses for the District Commissioner's Court. The Hospital (built 1911) is built (walls) of mud bricks, strengthened by concrete pillars at intervals, ceiled with wood and having a corrugated iron roof over all. There are two large wall-covered verandahs with concrete drains all around; roof gutters collect rain water into two large tanks. The camp has nearly doubled in size since it was built, and there is hardly enough accommodation, an overflow into an empty barrack house being necessary in the wet season, for chronic ulcers, sore feet, etc. This leaves very little room for outside patients. The Dispensary portion is rather cramped, and the store rooms much too small. Medicines, dressings, etc., not in use have to be stored in the separate rooms originally built for female cases (not used), but now used as an operating room. This room is not in a surgically clean condition on account of this overcrowding with stores. It is suggested that a portion of the ante-room to the M.O.'s consulting room (not much used, as two large verandahs form quite a good waiting room) be taken in and added to the store rooms already present adjoining; this would double the store area without interfering with light, etc. About one yard of the whole width of floor space of this ante-room would suffice. It is a boarded-off end of this

ante-room that already forms these store rooms, so very little except expanding the match board walls of the store rooms would be needed, and very little expense entailed.

As no food is provided for the occupants of the Hospital (same as in other Protectorate Hospitals) it is often very difficult for natives to feed and provide for themselves in the Hospital for any length of time. In the hungry season, which corresponds to the wet and sick season, this is almost an unsurmountable obstacle, as natives from a distance could not buy food locally. This, of course, keeps away many would-be in-patients. In one or two very serious cases of prolonged illness, septic wounds, etc., which had to be treated or die, they would have equally died from starvation if food had not been issued (on payment) by the W.A.F.F. authorities, on my certification of extreme urgency. Every such case must of course be rigidly controlled, or the Hospital would quickly become a house for starving people in the hungry season. There is a Hospital labourer attached, also two military orderlies.

VI. Scientific.—Owing to large amount of dressing work, until quite latterly, the M.O. was so employed in doing this work, that there was little or no time for scientific work.

Staff, Medical.—The Medical Officers (two) in charge, 1917, Drs. Arbuckle and Murphy. Dispensers Neville and Hooke, and latterly, in addition, Nurse Smith.

Visits.—The Hospital was visited by the Senior Sanitary Officer. The General Officer Commanding Troops, Sierra Leone, also inspected Hospital ward on two occasions.

(Signed) J. C. MURPHY,
Medical Officer.

DARU,
1917.

KANRE-LAHUN ANNUAL REPORT, 1917.

BY M.O., DARU.

This station is a W.A.F.F. out-station, and most of the returns deal with the illnesses, etc., of the Company of W.A.F.F. stationed there. Out-patients from the town of Kanre-Lahun attend, but unless for accidents, etc., the surrounding district does not make much use of the Dispensary. The district, though occupied for some time, has been incorporated in the Sierra Leone Protectorate for about seven years only.

Staff.—During the year 1917, Dr. Easmon continued to be in charge and in residence here for about two months only. The station was then placed in charge of Dr. Murphy, who pays monthly visits or oftener as required from Daru.

During the whole of 1917 Dispenser Williams was in residence and in charge.

Public Health.—During the year the general health of the district has been good. Rheumatism, Debility, etc., common. There were not many insect borne diseases. There was, and is, a general epidemic of Small-pox, but it is apparently much reduced. It was not of a very severe type in this district, did not attack many in the towns affected, and only a small

percentage died or suffered permanent disablement. *Syphilis* is reported to be very common in the district. *Tape Worms* are fairly common, also *round worms*, other varieties not seen. As is usual there was more sickness during the rains, helped, as usual, by shortness of food. As this station had not been occupied for some time it is impossible to make comparisons. It is, however, looked on as a healthy station.

European Officials.—The health of the Europeans has been good. Two Europeans only were on the sick list, both from digestive causes.

This station is placed on a hill where there are good breezes, the surrounding district is hilly. The natives of other parts consider it cold, and sometimes suffer from respiratory diseases. It is, however, a good station for Europeans.

Total number of European Officials on sick list, 2 (W.A.F.F.).

Total number of days spent by European Officials, 20 days.

Total number of European Officials in the district for periods of over one month, 12.

Average number of European Officials at any one time, 5 (1 civilian, 4 W.A.F.F.).

Total number of Native Officials on the sick list, nil.

Total number of days spent by Native Officials on sick list, nil.

Total number of Native Officials in district for periods of over a month, 5.

Average number of Native Officials stationed at any time in district, 3.

Soldiers.—One Company of W.A.F.F. averaging 100. A change of Companies took place during the year. Prevalent diseases, etc.: Gonorrhœa, Cuts, Bruises, etc.

Police.—None in this district.

Prisoners.—No prison.

Non-Official European Population.—One (not on sick list).

Non-Official Native Population.—Six (none on sick list).

This sub-district is included in the railway district; population of sub-district probably exceeds 10,000. No vital statistics known. No registration, etc., kept.

Hospitals and Dispensaries.—The chief work in the Hospital and Dispensary has been attending and dressing cuts, bruises, ulcers, etc. The Dispensary and Hospital are native huts, and the accommodation is not very good, but meets the occasion. No special recommendations.

Scientific Reports.—None made. No specially interesting cases. Owing to the short time spent here by M.O. (monthly visits) no special investigations have been made.

Visits were made by the Senior Sanitary Officer and general inspection, etc.

(Signed) J. C. MURPHY,
Medical Officer.

January, 1918.

RETURN OF OUT-PATIENTS SHOWING DETAILS OF CASES TREATED IN EACH MEDICAL DISTRICT IN THE YEAR 1917.

Diseases.	With Medical Officers.									With Dispensers only.													Total.
	Freetown Hospital.	Cline Town.	Freetown Gaol.	Kissy.	Moyamba.	Bo.	Daru.	Wellington.	Bonthe.	Bandajuma	Pujehun.	Kennema.	Waterloo.	Kaballa.	Regent.	Kent.	York.	Banana Islands.	Sumbuyah.	Port Lokkoh.	Makene.	Batkanu.	Kaire-Lahun.	
Infective Diseases—																							
Beri Beri	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Cerebro-Spinal Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chicken-pox	—	—	2	—	—	30	3	—	—	—	—	2	—	—	—	1	—	—	—	—	—	1	3	42
Cholera	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dengue	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diphtheria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dysentery	194	60	137	10	11	32	47	—	27	12	23	12	4	—	7	1	3	4	6	9	14	4	16	633
Endocarditis (Infective)	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	4
Enteric	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
Gonorrhœa	140	86	113	1	93	68	138	—	49	107	131	67	12	35	2	3	56	16	43	37	60	22	46	1325
Influenza	1	5	—	—	—	1	—	—	6	—	3	—	—	—	—	—	—	—	—	1	—	—	—	17
Kala-Azar	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
Leprosy (*a*) Nodular	3	—	—	—	—	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	8
(*b*) Anæsthetic	1	1	6	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	26	—	—	1	—	37
Malaria (*a*) Tertian	60	1	3	66	—	9	188	6	—	—	38	11	152	—	47	—	68	—	—	8	8	58	—	723
(*b*) Quartan	—	—	—	—	—	—	—	—	1	—	8	106	—	—	—	—	—	—	28	—	—	—	—	143
(*c*) Æstivo-Autumnal	894	273	4	85	175	104	67	22	19	28	4	—	—	15	42	22	—	31	—	16	89	—	43	1933
(*d*) Chronic Malaria	12	—	62	—	4	—	—	—	73	—	—	—	—	32	—	—	—	—	—	2	—	—	—	185
(*e*) Blackwater	6	—	—	—	1	3	1	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	13
Measles	2	2	—	—	—	3	—	—	—	—	1	—	—	—	—	—	7	—	1	1	—	1	1	19
Malta Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Plague	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pneumonia	34	8	—	—	—	5	3	—	1	—	1	1	2	—	2	—	5	2	2	1	—	—	—	67
Rabies	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Relapsing Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rheumatic Fever	—	—	—	—	2	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	4
Septicæmia	4	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Small-pox	—	—	—	—	—	1	1	—	10	—	—	1	74	1	—	61	4	—	—	1	—	—	—	154
Syphilis (*a*) Primary	7	5	—	—	9	—	19	—	—	—	—	—	—	1	—	—	4	—	—	—	—	—	—	45
(*b*) Secondary	9	1	3	—	—	—	—	—	1	—	—	—	—	2	—	—	—	—	—	—	—	—	—	16
(*c*) Tertiary	101	54	—	20	9	9	—	3	26	6	29	29	10	37	4	6	—	6	63	103	13	33	14	575
Tetanus	12	1	—	1	1	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	1	—	—	18
Trypanosomiasis (Sleeping Sickness)	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
Tuberculosis	64	5	6	3	3	1	4	—	5	1	5	1	—	—	2	—	1	—	2	3	—	—	1	107
Whooping Cough	44	77	—	21	17	—	—	—	6	1	1	1	—	1	2	1	—	—	—	3	—	3	—	178
Yaws	5	—	—	1	2	2	31	—	4	4	10	3	3	27	—	7	5	9	2	13	20	41	5	194
Yellow Fever	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Other Diseases	—	—	1	—	—	—	12	—	2	—	—	32	—	—	—	—	—	—	—	—	—	—	—	47
Intoxications—																								
Alcoholism	2	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Morphinism	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Others	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

GENERAL DISEASES—																											
Anæmia	82	—	9	8	9	2	2	5	42	—	6	—	16	1	14	3	6	14	8	11	—	1	—	239
Anæmia (Pernicious)	—	23	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	—	—	27
Diabetes	—	1	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	3
Exophthalmic Goitre	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gout	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Leucocythæmia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hodgkin's Disease	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Myxœdema	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Purpura	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rickets	2	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	1	—	—	—	5
Scurvy	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Other Diseases (mostly Rheumatism)	945	820	34	140	482	405	441	46	3	68	113	233	348	90	212	159	389	95	152	199	93	248	—	5715
LOCAL DISEASES.																											
DISEASES OF THE NERVOUS SYSTEM—																											
Sub-section 1.																											
Neuritis	—	2	—	1	—	—	—	—	13	—	—	—	—	—	—	2	—	—	2	2	—	—	—	22
Meningitis	4	—	—	—	—	—	—	—	4	—	1	—	—	—	—	—	—	—	—	—	—	—	—	9
Myelitis	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Hydrocephalus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Encephalitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Abscess of Brain	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Congestion of Brain	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
Other Diseases	9	—	—	—	—	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18
Sub-section 2.																											
Apoplexy	1	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	4
Paralysis	17	17	—	6	4	2	—	—	1	1	1	1	—	—	4	2	9	—	—	—	—	2	—	67
Chorea	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Epilepsy	8	4	—	—	2	1	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	17
Neuralgia	64	76	2	36	29	8	37	7	28	21	25	6	17	18	35	5	22	—	24	14	8	16	—	498
Hysteria	10	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12
Other Diseases	11	5	2	4	—	7	56	—	15	—	—	35	—	—	2	—	—	—	1	11	21	5	—	175
Sub-section 3.																											
MENTAL DISEASES—																											
Idiocy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mania	3	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Melancholia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dementia	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Delusional Insanity	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Diseases	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
DISEASES OF THE EYE—																								
Conjunctivitis	110	41	6	5	25	29	28	1	14	8	24	30	11	10	9	4	10	6	15	9	15	16	4	430
Keratitis	7	2	—	—	—	—	—	—	2	—	1	—	—	—	1	—	—	—	—	—	—	—	—	13
Ulceration of Cornea	3	1	—	—	2	—	—	—	—	—	4	—	—	3	—	1	—	—	—	—	—	—	—	14

RETURN OF OUT-PATIENTS SHOWING DETAILS OF CASES TREATED IN EACH MEDICAL DISTRICT IN THE YEAR 1917—*continued.*

DISEASES.	With Medical Officers.									With Dispensers only.													Total.
	Freetown Hospital.	Cline Town.	Freetown Gaol.	Kissy.	Moyamba.	Bo.	Daru.	Wellington.	Bonthe.	Bandajuma.	Pujehun.	Kennema.	Waterloo.	Kaballa.	Regent.	Kent.	York.	Banana Islands.	Sumbuyah.	Port Lokkoh.	Makene.	Batkanu.	Kamrelahun.	
DISEASES OF THE EYE—*continued.*																							
Iritis	11	1	1	—	1	—	—	—	1	—	—	—	2	—	3	—	1	—	—	1	—	—	—	22
Optic Neuritis	—	—	—	—	—	—	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Cataract	1	1	—	—	1	—	—	—	2	—	1	—	—	1	—	2	—	—	—	5	—	—	—	14
Other Diseases	12	27	2	—	2	4	7	—	9	—	—	2	—	3	1	1	3	—	—	3	—	—	—	76
DISEASES OF THE EAR—																								
Inflammation	50	40	—	1	8	5	—	—	2	—	5	14	8	12	—	3	11	1	14	—	5	6	1	186
Other Diseases	41	2	8	12	20	14	19	2	19	7	6	9	—	5	10	3	5	1	—	11	—	3	11	208
DISEASES OF THE NOSE	116	130	2	—	27	19	25	—	11	11	2	34	—	7	31	—	10	4	2	7	6	8	—	452
Others	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
DISEASES OF THE CIRCULATORY SYSTEM—																								
Pericarditis	2	2	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	6
Endocarditis	3	3	2	—	1	—	1	—	5	—	7	—	—	—	—	—	—	—	—	—	—	—	—	22
Valvular—Mitral	27	—	35	1	4	7	10	—	16	2	17	3	1	—	1	2	20	—	5	6	—	—	—	157
Aortic	32	10	22	—	—	1	—	—	7	—	4	1	—	—	—	—	—	—	—	—	—	—	—	77
Tricuspid	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pulmonary	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arterial Sclerosis	—	—	—	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Aneurism	2	—	—	1	—	—	—	—	1	—	—	1	—	—	2	—	—	—	—	—	—	—	—	7
Other Diseases	43	15	5	—	6	1	3	—	8	—	1	—	—	2	2	—	8	—	1	—	3	3	1	102
DISEASES OF THE RESPIRATORY SYSTEM—																								
Laryngitis	37	9	—	—	5	—	—	—	1	—	—	—	—	—	—	—	—	60	—	—	1	—	—	113
Bronchitis	1122	610	34	247	314	224	191	72	274	138	157	191	263	197	146	58	169	—	94	151	110	204	57	5023
Broncho-Pneumonia	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Abscess of Lung	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gangrene of Lung	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Emphysema	1	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Pleurisy	30	49	—	1	5	1	4	—	14	—	6	3	2	—	—	3	1	—	2	4	—	7	—	132
Empyema	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Diseases	11	19	3	2	2	37	1	—	25	2	10	23	9	5	6	5	21	3	10	2	3	15	—	214
DISEASES OF THE DIGESTIVE SYSTEM—																								
Stomatitis	43	50	4	5	15	25	13	—	11	2	2	6	—	—	26	2	8	4	—	3	—	2	1	222
Caries of Teeth	201	98	22	37	93	70	49	1	106	36	37	51	3	24	24	6	32	15	38	19	20	19	24	1025
Glossitis	9	3	—	—	—	1	—	—	1	—	4	—	19	—	4	—	2	—	—	—	—	—	1	44
Sore Throat	10	14	3	4	20	—	21	1	33	—	6	6	2	3	10	6	5	1	—	—	—	—	1	161
Inflammation of Tonsils	68	92	15	12	8	15	3	1	27	5	4	4	10	3	17	2	13	8	4	5	5	7	—	320
Gastritis	52	11	—	4	12	7	—	1	19	1	11	—	1	—	15	3	—	—	21	—	3	1	—	158
Ulceration of Stomach	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Diseases of the Digestive System—*continued.*																												
Hæmatemesis	—	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Dilatation of Stomach	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Stricture of Stomach	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dyspepsia	997	391	45	133	129	127	46	44	133	34	56	126	288	53	178	62	93	68	68	66	15	10	17	3179
Enteritis	3	1	—	—	2	—	1	—	6	—	18	—	—	1	—	—	—	—	—	—	—	—	—	32
Appendicitis	10	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	12
Colitis	1	—	1	—	—	1	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Ulceration of Intestines	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sprue	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hernia	71	16	22	1	16	10	3	—	16	—	11	2	1	4	2	—	4	—	3	4	4	14	1	205
Diarrhœa	124	61	19	51	108	53	155	9	29	27	37	41	15	17	23	6	21	9	28	23	50	12	11	929
Constipation	588	495	575	135	311	446	445	104	282	269	247	424	245	202	172	175	482	279	179	189	119	476	106	6945
Colic	59	33	20	4	29	9	50	1	77	15	18	35	6	6	56	10	9	—	4	3	1	5	3	453
Hæmorrhoids	23	25	1	2	8	4	9	1	4	—	2	14	5	1	25	—	6	2	14	2	—	—	—	148
Pancreatitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hepatitis (Acute)	21	67	—	5	3	2	1	—	23	—	—	4	—	3	—	5	2	—	1	3	—	—	—	140
Abscess	4	—	—	—	—	—	—	—	7	—	1	—	—	—	8	—	—	—	—	—	—	—	4	24
Cirrhosis	7	—	—	2	—	—	1	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17
Jaundice	3	2	—	—	2	—	1	—	1	—	—	—	—	—	1	—	—	—	—	3	—	—	—	13
Peritonitis	7	—	—	—	—	—	1	—	—	1	1	—	—	1	1	—	1	—	—	1	—	—	—	14
Ascites	5	3	1	4	1	—	—	—	—	—	2	—	—	2	—	—	4	—	—	—	—	—	—	22
Other Diseases	76	94	11	2	4	6	12	—	29	1	2	14	1	5	6	3	6	—	—	3	6	—	1	282
Diseases of the Lymphatic System—																								
Splenitis	30	17	—	3	2	20	—	1	96	3	4	6	2	2	46	17	11	—	2	2	—	2	—	266
Inflammation of Lymphatic Gland	107	13	11	22	36	14	41	2	2	18	19	15	3	6	24	1	10	2	3	7	16	15	—	387
Suppuration	29	6	4	—	—	3	13	—	5	—	4	3	—	6	2	—	—	—	—	3	—	—	2	80
Lymphangitis	3	—	—	—	—	—	—	—	18	—	2	—	—	—	—	—	—	—	—	1	—	—	2	26
Elephantiasis	26	1	—	—	5	1	—	—	—	—	2	—	—	—	1	—	—	—	—	—	—	—	—	36
Other Diseases	—	—	—	—	—	—	—	—	6	—	—	—	—	—	3	—	—	2	—	—	4	—	4	19
Diseases of the Urinary System—																								
Acute Nephritis	44	5	—	1	4	1	—	—	7	—	—	—	3	1	1	1	—	1	1	—	1	—	—	71
Bright's Disease	—	2	3	1	2	1	2	—	2	—	3	2	5	—	6	—	1	—	7	3	1	—	—	41
Pyelitis	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Calculus	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Renal Colic	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Cystitis	11	—	—	3	1	2	2	1	5	—	—	7	—	—	—	—	2	—	11	—	9	—	—	54
Vesical Calculus	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Suppression	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	2
Hæmaturia	2	—	—	—	2	—	3	—	—	—	—	—	—	—	—	—	1	—	2	—	—	1	1	12
Chyluria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Diseases	17	1	—	1	—	1	—	—	10	2	—	1	—	—	—	2	—	—	—	—	—	1	—	36
Diseases of the Generative System— *Male Organs.*																								
Urethritis	5	1	—	—	1	—	1	—	1	7	2	4	—	—	—	1	—	—	1	—	—	—	—	24
Gleet	—	2	10	2	1	2	—	—	3	—	2	2	—	1	1	—	2	1	1	1	—	—	—	31

RETUTN OF OUT-PATIENTS SHOWING DETAILS OF CASES TREATED IN EACH MEDICAL DISTRICT IN THE YEAR 1917—*continued*.

DISEASES.	With Medical Officers.									With Dispensers only.													Total.
	Freetown Hospital.	Cline Town.	Freetown Gaol.	Kissy.	Moyamba.	Bo.	Bum.	Wellington	Bonthe.	Bandajuma.	Pujehun.	Kennema.	Waterloo.	Kabalia.	Regent.	Kent.	York.	Banana Islands.	Sumbuyah.	Port Lokkoh.	Makene.	Batkama.	Kanre-Lahun.	
DISEASES OF THE GENERATIVE SYSTEM—*cont.*																							
Stricture	29	8	2	—	3	—	7	—	—	2	2	—	1	6	1	2	—	—	4	1	1	—	1	70
Prostatitis	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Soft Chancre	8	1	22	1	8	4	30	—	5	13	6	10	1	—	—	1	1	—	8	2	9	3	10	143
Condyloma	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Inflammation of Scrotum	2	—	—	—	1	1	—	—	—	—	2	—	1	1	1	—	—	—	—	—	—	—	4	13
Hydrocele	17	4	6	2	11	3	—	—	8	—	4	—	—	9	3	—	—	—	—	2	2	12	1	84
Orchitis	31	12	8	1	15	12	17	—	7	2	6	14	—	3	1	5	3	3	12	4	17	7	1	181
Epididymitis	1	1	1	—	1	1	7	—	8	—	2	1	—	—	—	1	—	—	—	—	—	1	—	25
Abscess of Testicle	—	—	—	—	—	—	1	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Other Diseases	18	1	1	—	3	7	9	—	—	1	1	1	—	1	—	—	—	—	1	—	—	—	2	46
Female Organs.																								
Ovaritis	10	1	—	—	6	1	—	—	—	—	—	—	—	—	—	5	2	1	—	1	—	—	—	27
Ovarian Cyst	—	1	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Endometritis	5	4	—	—	9	2	—	—	—	—	—	5	—	—	4	1	4	—	—	2	—	—	1	37
Displacement of Uterus	4	3	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	9
Vaginitis	5	2	—	—	1	—	—	—	3	—	—	1	8	—	1	—	—	—	3	—	—	—	1	25
Amenorrhœa	48	71	—	2	14	8	2	—	12	2	6	9	1	12	10	13	11	5	1	6	1	2	2	238
Dysmenorrhœa	6	24	—	1	9	3	2	—	4	2	—	2	8	8	6	5	9	—	8	1	1	—	1	100
Menorrhagia	6	24	—	7	2	6	—	1	3	—	2	3	—	—	7	4	—	1	4	1	1	1	1	74
Leucorrhœa	5	16	—	—	—	—	—	—	—	1	1	1	—	—	2	—	—	—	4	1	—	—	1	32
Abortion	36	12	—	2	—	3	1	—	1	—	—	5	—	2	5	3	—	—	1	—	2	—	—	73
Delayed Labour	—	—	—	—	—	—	—	—	—	—	—	1	—	2	—	2	—	—	—	—	—	—	—	5
Post-partem Hæmorrhage	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Retained Placenta	4	—	—	—	—	—	—	—	1	—	—	—	—	—	—	2	—	—	—	—	—	—	—	7
Premature Birth	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	2
Puerperal Septicæmia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mastitis	15	7	—	1	—	—	—	1	2	—	1	2	1	1	2	2	3	—	—	—	—	1	—	39
Abscess of Breast	8	—	—	2	—	—	1	1	—	1	—	—	—	—	—	1	—	—	—	—	—	3	—	17
Other Diseases	184	124	—	—	6	1	1	—	20	3	—	3	—	3	1	—	6	—	—	—	2	1	2	357
DISEASES OF ORGANS OF LOCOMOTION—																								
Osteitis	10	11	—	—	27	—	3	—	33	—	2	—	—	—	—	—	1	—	2	6	1	—	1	97
Arthritis	23	9	—	—	8	5	4	—	85	1	57	—	2	16	2	—	—	—	4	1	1	—	—	218
Spondylitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bursitis	3	—	—	—	1	—	2	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	8
Other Diseases	76	204	52	19	65	89	1	4	120	119	111	77	—	52	20	14	23	12	2	29	145	43	133	1410
DISEASES OF CONNECTIVE TISSUE—																								
Cellulitis	44	8	—	—	5	1	31	—	17	—	4	—	—	2	6	—	4	—	2	2	5	4	—	135
Abscess	130	46	5	31	23	20	33	4	24	9	9	9	15	22	12	9	7	4	5	8	29	19	2	475
Elephantiasis	—	—	—	—	—	—	2	—	6	—	—	—	—	3	—	—	—	—	—	1	—	1	—	13
Other Diseases	39	11	—	—	—	—	4	—	—	—	1	—	—	5	—	—	—	—	—	—	—	—	—	60

DISEASES OF THE SKIN—																														
Urticaria							4	2	—	—	7	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2	16
Eczema							14	31	20	5	13	9	6	—	9	1	7	5	—	7	5	3	3	—	3	5	3	17	2	168
Boil							32	43	18	12	27	23	29	3	11	1	19	24	6	4	5	5	23	2	6	3	19	13	9	337
Carbuncle							7	2	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	2	—	14
Herpes							14	3	1	3	3	—	—	1	—	—	1	—	—	—	1	—	3	—	—	1	—	—	—	31
Psoriasis							—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	3
Oriental Sore							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tinea							—	13	47	—	12	12	6	—	22	1	70	7	—	4	—	3	1	—	—	5	3	2	13	221
Scabies							48	18	12	1	30	21	28	—	27	23	59	2	3	2	9	5	16	2	39	13	4	46	—	408
Acne							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prickly Heat							2	—	—	—	—	—	1	—	1	—	4	—	—	1	—	—	—	—	—	—	—	—	—	9
Other Diseases							801	250	26	112	281	289	356	41	362	87	169	230	213	353	123	64	213	81	234	271	69	209	41	4866
INJURIES—																														
General							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	1	96	—	—	101
Local							957	302	22	50	155	171	486	10	168	221	95	132	34	78	57	40	67	69	73	58	—	111	180	3536
SURGICAL OPERATIONS							—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	12	—	—	14
Phimosis							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TUMOURS							26	2	1	—	8	3	3	—	25	—	14	1	—	2	—	1	—	—	4	—	—	—	—	90
Others							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MALFORMATIONS							1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
POISONS							5	—	—	—	—	1	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
PARASITES—																														
Animal.																														
Protozoa							—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Trematoda (Flukes)							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Diseases							—	—	21	—	—	—	10	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	32
Cestoda.																														
Tænia solium							11	42	—	12	16	8	12	—	3	—	4	10	10	33	10	3	4	—	12	4	3	12	8	217
Tænia saginata							—	—	19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19
Nematoda.																														
Ascaris							130	87	66	35	138	43	22	13	107	56	23	47	6	75	27	19	25	22	22	41	24	86	13	1127
Tricocephalus dispar							16	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19
Trichina							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dracunculus							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Filariasis							2	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Strongylus							—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Ankylostomiasis							36	7	75	—	—	—	—	—	13	—	—	—	—	—	—	—	—	—	—	1	—	—	—	132
Oxyuris							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Others							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insecta																														
Myiasis							—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	5
Other Diseases							2	—	1	—	—	4	7	—	1	—	—	1	—	—	—	—	—	3	—	2	—	—	7	28
N.A.D.							95	25	—	—	—	2	—	—	30	—	—	—	—	—	3	9	—	—	—	—	—	—	—	164
N.Y.D.							58	—	—	—	—	25	—	—	10	—	—	—	—	—	—	1	—	—	—	—	—	—	—	94
TOTALS							10125	5427	1707	1407	3011	2641	3348	410	2894	1388	1831	2223	1853	1566	1570	882	1982	854	1347	1454	1165	1860	821	51765

ANNUAL SANITARY REPORT

FOR THE YEAR ENDING 31ST DECEMBER, 1917,

BY THE

SENIOR SANITARY OFFICER.

III.—SANITATION.

I.—ADMINISTRATIVE.

During the year 1917, despite many adverse circumstances, considerable sanitary progress was made in the Colony and Protectorate of Sierra Leone, mainly due to the keen interest displayed by the Government in everything affecting the health and progress of the people, and to the ready help given to the Medical and Sanitary Department by Political and Army Officers, several of whom—owing to the scarcity of Medical Officers and the increased responsibility thrown on those still remaining—had willingly undertaken and satisfactorily carried on the supervision of the work of Sanitary Inspectors, Vaccinators and labourers, and interested themselves in various other matters, such as the laying-out of new towns, the construction of huts and houses, the drainage of swamps and the provision of water supplies.

Native Sanitary Staff.

2. From the beginning of the year the Native Inspectors ceased to be Supernumerary Constables and came under the complete control of the Sanitary Department, and a little later the staff was strengthened by the addition of six Inspectors, whose time was entirely devoted to anti-mosquito measures.

The Protectorate.

3. Owing to the outbreak of Yellow Fever in certain parts of the Protectorate, Native Sanitary Inspectors were employed and rendered valuable service in discovering and destroying the breeding places of stegomyia fasciata, and one has been posted to the Makene District, where three Europeans died within a period of four months. Later, it is intended to have Travelling Inspectors on the various sections of the railway to look after the sanitation of the towns and villages connected therewith.

4. On the 12th March, Rules 4, 8, 9 and 10 of Part I. of the Public Health (Protectorate) Rules, dealing with the erection of huts and houses, the repair of dilapidated and ruinous huts and houses, and the prevention of mosquito breeding, were applied to the Sanitary District of Port Lokkoh as constituted by Order-in-Council of the 10th April, 1916.

Village Sanitation.

5. On the 30th July, 1917, an Order-in-Council was passed declaring the villages of Wilberforce and Murray Town and certain lands adjacent thereto, the whole comprising an area of about $1\frac{7}{8}$ square miles in extent, to be a Sanitary District, the Medical Officer in charge of Outforts representing and being known as the Sanitary Authority in that district, and as this arrangement provides for the more frequent inspection of the area, a Sanitary Inspector being confined almost entirely to it, a considerable improvement in the sanitary condition, especially of Murray Town, has been effected; but owing to the lack of enterprise of the Headman of Wilberforce, on whom devolves the duty of carrying out certain specified work, it became necessary to replace him. Regulations for the Districts of Regent, Allen Town and Bathurst were drawn up and were approved by the Governor, on the 13th of April for Regent and Allen Town, and on the 10th of May for Bathurst, each of which place is kept in fair sanitary condition.

6. For the sanitary improvement of villages a great deal depends on the type of headmen selected, some being much more interested in the welfare of their people and village than others, and it is astonishing how much jealousy exists between them. This in some cases is beneficial, but in other cases is detrimental to sanitary progress, but on the whole the villages are comparatively clean, some of them being exceptionally so.

II. (1) PREVENTIVE MEASURES AGAINST INSECT-BORNE DISEASES.

Malaria—Anti-Mosquito Work.

7. Towards the beginning of the rains, cases of malaria still occurring frequently, as reported by the Medical Officer in charge of the Laboratory, and the number of mosquitos in certain areas of Freetown not having been materially reduced, it was considered advisable to adopt more strenuous anti-mosquito measures than were possible to carry out by the regular Sanitary Inspection Staff, His Excellency readily assenting to the proposal to form special mosquito-exterminating gangs. Early in June, therefore, six extra Native Inspectors, under the supervision of the Superintendent Sanitary Inspector and aided by a number of labourers, were set to work under the direction of the Senior Sanitary Officer, their efforts, together with those of the regular sanitary staff, resulting in the discovery of large numbers of mosquito-breeding places and their subsequent reduction. Special oiling gangs were also formed, each oiler being provided with an American spray pump, which proved not only useful but economical.

8. In the same month instructions were issued to the Acting Medical Officer of Health to direct the attention of the Sanitary Inspectors especially to the Anopheline breeding places in the low-lying areas, and on the return of the Medical Officer of Health from leave in the middle of September, this work was continued, and somewhat later the special mosquito-exterminating gangs were handed over to him.

9. Although it was found that the number of anopheline breeding places discovered was greatly in excess of that of any previous year the actual number of cases of Malaria microscopically diagnosed at the Hospital was reduced to 243 in 1917, as compared with 313 in 1916, and in some schools it was noted by those in charge that teachers and children were less frequently off duty than formerly, showing that the work of the special anti-mosquito gangs was justifying their formation, and it is to be deplored that since the great anti-mosquito campaign carried out by Sir Ronald Ross about 18 years ago in Freetown, the work of mosquito reduction by special men appointed for the purpose was not continued.

10. No temporary measures carried out in the Freetown area can be successful in materially reducing the number of mosquitos for any considerable period, unless at the same time attention is paid to the water courses and valleys around that area, and while the campaign was begun in the former, the latter places were not by any means neglected, as was proved by the almost complete, if not entirely so, absence of anophelines from Hill Station, where less than two years ago they were, in some parts, very numerous.

11. As compared with 1916, when 361 mosquito breeding places were discovered, 529 were found by the same number of Sub-Inspectors in 1917, the former number resulting in 359 prosecutions with 305 convictions and £76 6s. 4d. in fines, and the latter in 431 prosecutions with 388 convictions

and £51 17s. 3d. in fines. The average fine in 1916 was 5s., and in 1917, 2s. 8d., the smallness of fines in the latter year probably influencing in some way the number of cases of larvæ discovered.

12. The oiling gangs dealt with drains, pools, wells, cesspits and other breeding places found and reported by the anti-mosquito gangs and Sub-Inspectors, although, as a precautionary measure, the latter were, each day, provided with a small quantity of oil with which to treat at once collections of water where larvæ were newly discovered. In 1917, 46,225 drains and pools, about 600 cesspools and between 200 and 250 wells were oiled regularly, the number of drains and pools treated being trebled as compared with the highest number in any of the previous years.

13. An extensive campaign was carried out in connection with mosquito breeding plants, such as the dracænæ and trees having natural or artificial cavities as paw-paw and cotton trees.

14. Of 29,311 holes found in trees, 2,323 contained mosquito larvæ, the breeding places being destroyed by cutting channels to drain off the water after the surface had been oiled, or by filling up the holes and cementing over the tops.

15. The mosquito index for trees was found to be much higher than that for compounds, being 2·7 for the former in the early period of the campaign, as compared with 1·2 per cent. for the latter during the same period.

16. Mosquito larvæ indices in compounds taken at the end of each quarter —trees and mosquito-breeding plants being excluded—by the Medical Officer of Health, and some of the Senior Inspectors gave the following results :—

	1916.	1917.
March	1·14 per cent.	1·22 per cent.
June	19·70 ,,	6·5 ,,
September	No larvæ found	1·7 ,,
December	1·43 per cent.	7·1 ,,

17. The increase for the last two quarters of 1917 can hardly be attributed to better inspection, considering that 100 compounds in each case were examined by those who had done the same work on previous occasions, and one is rather inclined to believe it to be due to the intermittent showers which fell throughout most of the time that was previously marked by heavy down-pours of rain.

18. Considering the large number of places closed to mosquitos, together with the large quantities of oil used, one would expect a great diminution of mosquitos—and this is truer of certain kinds other than anophelines—breeding places can still be found, but can be more readily kept under observation if they cannot be abolished as happens in the open low-lying parts where laterite rock or gravel, the former much pitted with holes and containing many pools, takes the place of subsoil, most of the soil having been washed away owing to the land being denuded of trees and bush, and carried down the water courses which are abundant.

19. It is a matter of some difficulty to deal effectively with this and other low-lying land, for surface drainage alone will not meet the case, as apart from holes, water constantly percolates through the laterite, but that, combined with reclamation and subsoil drainage, should go a long way towards ending the conditions.

20. Cesspools are the most unsavoury and unsatisfactory places of all to deal with, as many, besides those which are being oiled at present, are no doubt producing large numbers of mosquitos, mostly, perhaps, *Culiciomyia nebulosa*, and the only way to make sure of mosquito reduction from this source is to oil the whole of them until the time comes to abolish them.

Boats and canoes were regularly inspected, but few of them were found to contain mosquito larvæ.

21. An interesting feature of the early part of the anti-mosquito campaign was the large number of collections of mosquitos developed from larvæ sent to Mrs. Connal, wife of the Director of the Medical Research Institute in Nigeria, for the purpose of identification. Larvæ were also at first sent, but the supply of phials soon ran out, so that they could no longer be forwarded.

22. The following is an analysis showing the number of instances in which the various mosquitos appeared in 590 lots, the larvæ of which, associated in various ways, were found in trees, boats, bottles, tanks, tins, drums, pots, holes in rock, etc. :—

Stegomyia fasciata ...	appeared	271 times or	31·3 per cent.
Culiciomyia nebulosa	212 „	24·4	„
Stegomyia sugens	77 „	8·9	„
„ *luteocephala*	56 „	6·4	„
Ochlerotatus appicoannulatus ...	44 „	5·1	„
Culex decens	43 „	4·9	„
„ *duttoni*	31 „	3·5	„
Eretniopodites chrysogaster	28 „	3·2	„
Culex tigripes	20 „	2·3	„
Anopheles costalis	14 „	1·6	„
Eretmopodires quinquevittatus ...	13 „	1·5	„
Culex thalassius	8 „	·9	„
„ *invidiosus*	8 „	·9	„
Ochlerotatus irritans	7 „	·8	„
Toxorhynchites brevipalpis	5 „	·5	„
Stegomyia pseudonigeria	5 „	·5	„
Stegomyia africana	4 „	·4	„
Eretmopodites œdipodius	4 „	·4	„
Culex grahami	3 „	·3	„
Ochlerotatus domesticus	3 „	·3	„
„ *marshalli*	2 „	·2	„
Stegomyia metallica	1 „	·1	„
Culex fatigans	1 „	·1	„
Ochlerotatus argentopunctatus ...	1 „	·1	„

Most of the above mosquitos were collected during the rains, and groups of as many as 40 or more were sent for identification, but in cases where the larvæ were few in number or of one variety, sometimes as few as two or three only were forwarded.

23. The number of anopheles, according to this table, appears to be low, and so it is, for when anophelines are associated with other larvæ, the former seem to be preyed upon by the latter if the specimens are kept " in vitro " for any length of time, and, in the rains, many anopheline larvæ get washed out of the breeding places, so it happens that most of them are discovered in the end of the rains, and then also the number of cases of Malaria are found to increase. Special precautions were, however, taken to collect anophelines when hatched out, and I am much indebted to Mrs. Connal and Dr. Connal,

of the Medical Research Institute in Nigeria, for their great kindness and interest taken in the identification of mosquitos, which I had sent to them from this Colony, and to Mr. Bowen, Superintendent Sanitary Inspector, who took special pains in preparing them for dispatch.

24. The collections identified, embracing only a small proportion of the numbers discovered, cover a period of four months and are fairly representative, I think, of the mosquitos found in Sierra Leone, and Mrs. Connal commented on the fact that *O. marshalli* had not been previously described from West Africa, although found in Rhodesia, nor *Culex fatigans* from Sierra Leone. It was also the first time that *Eretmopodites quinquevittatus* and *Eretmopodites chrysogaster* had been sent to her. The *Toxorhynchites*, she declared, were the best specimens she had received, but there are many of them in this Colony, though they are becoming scarcer now.

25. While the number of Malaria cases attending the Hospital in 1917 showed a reduction of 22·36 per cent. on that of 1916, the number of deaths from this disease registered in Freetown and certified by Medical Practitioners was 12 in 1916, and 15 in 1917, but I note that in a few cases high fever, following rapidly on child birth and resulting in death, has been certified as Malaria Fever.

26. Altogether, in 1916, 113 deaths were registered as being caused by "Fever," including Malaria Fever, and in 1917 a total of 93 deaths were so registered, showing a fall of 17·69, which, allowing for difficulties in arriving at the true cause of death when not medically certified, corresponds approximately with the reduction in cases microscopically diagnosed as Malaria at the Hospital.

27. The total number of registered deaths in Freetown, exclusive of Coroner's Inquests, was 913, 223 being certified in 1916, and 845, 230 being certified, in 1917, and of these 12·37 per cent. and 11·00 per cent. were registered as due to "Fever," including Malaria, in 1916 and 1917 respectively, but many of these deaths were of young children, and as most cases of this kind were not certified, little stress can be laid on the diagnosis of the cause of death. Anyhow, it is gratifying to note a decrease in the total deaths in Freetown for the year 1917, and in the number of deaths registered as "Fever," and, with more accurate registration combined with a continuation of the present sanitary development, much more satisfactory results should be forthcoming, and one wonders if the year 1917 is the turning point whereon the Creole has begun to assert his right to live and multiply. If so, and he is willing to abide by the sanitary restrictions placed upon him and to aid further in their application for his welfare, the Government will ungrudgingly help him to attain the end he has in view.

28. Canalization of streams was, as usual, carried out at the end of the rains, and pools were filled and swamps drained, but there is still much to be done in this way in the Colony and Protectorate.

Yellow Fever.

29. Yellow Fever was reported from Bathurst, Port Novo, Lagos, Accra, Jalingo in Northern Nigeria, Matadi in the Congo Free State, Forcados, Coomassie and Bonny, and four cases occurred among Europeans in Sierra Leone, showing that this disease is widely distributed along the coast, and that the necessary facilities exist for its propagation and spread.

30. In this Colony and Protectorate, *Stegomyiæ* can be found in great abundance, *Stegomyia fasciata* greatly preponderating, and while Freetown itself may not be regarded as an endemic focus of Yellow Fever, one concludes—from a study of the records of deaths, many of which occurred in pairs within a short time of each other, among missionaries and others in the Protectorate, and several of the former are conversant with the symptoms of the disease, cases of which appear from time to time in certain districts, making it almost, if not quite, possible to obtain a record occurring in each year over a considerable period—it would not be wise to assume that the disease is not endemic in the Protectorate, at least, not until such time as it is clearly proved not to be so.

31. It is a matter of extreme difficulty in this country to obtain anything like reliable information regarding this disease from natives, and one is inclined to believe that Syrians and their children, who are fairly numerous here, and are not immune to Yellow Fever, may unconsciously suffer from it, and so in some cases be the means by which European non-immunes become infected. At least one case of this kind arose, but it was not definitely established that the Syrian child died of the disease, as it was not seen for a few days before death, and no post-mortem examination was made, but the circumstances of the case taken in connection with those of a genuine case of Yellow Fever, following it closely, rendered it very suspicious indeed.

32. In every case reported as being suspicious or actually diagnosed as Yellow Fever, the utmost precautions, such as have been described again and again in previous reports and need not be repeated here, were taken to prevent further spread of the disease, and careful search was made for *stegomyiæ* mosquitos and larvæ, and always the latter and sometimes the former were found in or near the house where the disease occurred. Indeed, *Stegomyia fasciata* is so common that it can be found in almost all villages along all the lines of communication, and it has nearly always happened that cases of Yellow Fever have been discovered in villages on or near the railway, and some of these have a definite history of Yellow Fever and African or Blackwater Fever, extending over such periods of time as Europeans have been resident in or near them, and it is this which gives the impression that there are Yellow Fever endemic foci in the Protectorate.

33. As previously stated, with the object of improving the sanitary conditions of these villages, it has been recommended that Travelling Sanitary Inspectors should be appointed to sections of the railway, and the Governor has asked that a scheme for their training, and that of others to be appointed outside the railway area, be drawn up. Already, in what is regarded as the worst district and where three deaths from Yellow Fever occurred in Europeans within a few months, two towards the end of last year and one at the beginning of this year, an Inspector is consistently employed going from village to village in a certain prescribed area, and other sections have also been visited.

34. In a campaign against any kind of mosquito-borne disease, it would seem to be a great mistake to concentrate one's attention on one variety of mosquito to the exclusion of others, which may be more numerous, and if neglected may be the means of setting up a more violent epidemic in this country than that which it is one's immediate object to suppress.

Trypanosomiasis.

35. The clearing of bush and underbrush in areas infested with tse-tse flies has had a wonderful effect in diminishing their numbers in those areas, but it is difficult to ascertain what general reduction takes place.

In the Protectorate where vast tracts of bush are burned each year very few tse-tse flies are seen and Trypanosomiasis is almost unknown.

II.—(2) PREVENTIVE MEASURES AGAINST INFECTIOUS AND EPIDEMIC DISEASES.

Dysentery.

36. Dysentery, chiefly of the Amœbic type, as shown by the returns of the Medical Officer in charge of the Laboratory, is one of the commonest and most troublesome diseases from which the inhabitants of the larger towns suffer, and it is clear that from its being absent or much less prevalent in places having a good water supply, entirely obtained from outside the town, it must, in a place like Freetown, where there are over 600 wells, many in close proximity to cesspools, some being only 8 to 10 feet apart, be due in most cases to contamination of the well supply from the cesspools.

37. Until a sewage disposal system is introduced and extended to the whole town it will not be possible to get rid of cesspools, but as an excellent water supply, which can be augmented from the pumping station to meet all requirements has been provided to Freetown, the most feasible plan to adopt would appear to be the closing of all wells, and a beginning has been made in this work which must be continued to completion in the interests of good health.

38 Recently, strong solutions of disinfectant, in combination with a larvicide, such as kerosene oil, have been used in spraying cesspools, and it is hoped that, besides reducing the number of flies breeding out from them, the number of cases of dysentery will also be diminished.

Plague.

39. Plague having been reported from the Gold Coast and Dakar it became necessary to adopt more strenuous methods for the destruction of rats in Freetown, especially in the stores and buildings near to the water front. Extra rat-catchers were appointed and the number of traps in use greatly increased, resulting in 6,667 rats being caught by them, as compared with 2,700 in the previous year.

40. Consignments of "Ratinin" were obtained from England and put down in various parts of the town, the results obtained, so far as could be ascertained, being satisfactory.

41. Arrangements were also made for the provision of rat guards and other necessary materials in the event of plague making its appearance in this country, and ships arriving from plague infected countries were visited with a view to ascertaining the presence or absence of the disease aboard them.

42. The Natives are encouraged to catch rats and are paid for each speciman presented at the Sanitary Offices, but lately the numbers brought in have been on the decrease, perhaps owing to the scarcity or difficulty in obtaining traps, or on account of the greater numbers caught by the rat-catchers.

43. Rats were examined in the Laboratory as usual, but they were all found to be free from plague infection.

Leprosy.

44. Leprosy, while not uncommon in this country, is a disease which could be brought under reasonable control by getting the chiefs and people interested in what seems to me to be the simplest means of preventing its transmission to other members of the community, namely, by making the chiefs and headmen responsible to report to the District Commissioners the appearance of all cases of the disease in their towns (they can all recognise it) and by compelling them to provide, a short distance outside the town, proper accommodation for the patients, and the requisite amount of food and clothing. In fact, all the lepers belonging to one tribe might be collected into one area, the tribe as a whole, or the villages to which the patients belong, providing for their housing and subsistence, which would not cost a very great amount of money, and this latter plan would be more congenial to the sick and produce better results than the isolation of patients outside villages, as, in time, they might become little self-supporting colonies, and anyone, with the least experience of West Africa, knows that tribal distinctions would have to be made if the patients would be happy and try to live their lives according to their custom.

Small-pox and Vaccination.

45. In the Colony and Protectorate, and especially in the latter, cases of small-pox, many of which the source of infection was difficult or even impossible to trace, made their appearance from time to time, but, owing to prompt and energetic measures being carried out as soon as information was received of their existence, the infection was prevented from spreading, and so developing into what might be regarded as an epidemic, although in several cases the disease proved fatal.

46. That small-pox could be dealt with thus readily was due to the large increase in the Vaccination Staff and cases being reported at once by District Commissioners and Medical Officers. In the estimates for 1915 provision was made for one Native Vaccinator only, that is a Native Official who should devote all his time to vaccination work, but besides him Medical Officers and Dispensers were appointed Public Vaccinators, and during an epidemic of small-pox in 1916 several of the latter devoted all or most of their time to the work and three or four additional Vaccinators were appointed.

47. In 1917 provision was made for eight Native Public Vaccinators, and early in the year the general control of vaccination was handed over to the Senior Sanitary Officer, arrangements having, in the meantime, been completed to carry out the scheme suggested by the Governor, for the selection and training of young men from the more important native tribes in the Protectorate to work among their own people, consequently a beginning was made with the selection by District Commissioners of six youths, each belonging to a different district or representative of a different people and, as time went on, and the necessity arose, this number was gradually increased until thirteen in all had been trained and returned to their various countries, the salaries of these youths, together with the cost of increased lymph supply and the provision of uniforms, entailing a considerable augmentation of the estimate for the year, but the good work done by them—they are mostly sons of chiefs—has justified their selection and appointment, and much more could be accomplished under constant supervision by a Sanitary or Medical Officer, but, owing to the rapid depletion of the Medical Staff, this responsibility has been thrown on the District Commissioners with the approval of the Governor, and they have willingly undertaken it, although they are hard enough pressed with their own duties through their being so much reduced in number.

48. Soon after the inauguration of the above scheme His Excellency granted for a time the appointment of a Medical Officer for the supervision of the Vaccinators, and Dr. Mayhew, who was selected for this duty, rendered much valuable service.

49. Many of the District Commissioners have themselves learnt the art of vaccinating, and have in cases of emergency done useful work in preventing the spread of infection.

50. Apart from the Vaccinators who are confined to the Protectorate, there are three men appointed to the Colony, and these, while ordinarily employed in Freetown, are dispatched to places outside it when the disease appears, and they are also periodically sent on vaccination tours throughout the surrounding villages.

51. Much more interest has recently been taken in vaccinating young children, and this can best be done in the Protectorate or outside Freetown, where women give their children more readily for this purpose, knowing well the ravages made among them in the past by small-pox.

52. Isolation of small-pox cases, which occured in the Protectorate and some out of the way places in the Colony, was carried out in temporary huts set up well outside and to the leeward of the town or village where they appeared, the huts being burned after the cases were discharged. At other places in the Colony more substantial structures with mud or concrete floors were built, and for the temporary isolation of cases in Freetown and those which might occur in or near Cline Town or reach there by the railway, until such times as they could be removed to the Infectious Diseases Hospital at Kissy, well-designed, mosquito-proof frame buildings were erected, but, owing to the energy with which vaccination has been pushed the number of cases requiring isolation had rapidly diminished. For the transference of patients to hospital a new type of fly and weather-proof hammock stretcher has been devised.

53. At various times the lymph supply ran so low that, but for our receiving additional supplies from the French Government at Dakar, to whom and their Medical and Sanitary Staff we are deeply indebted, many of the vaccinations enumerated below could not have been performed.

54. The following vaccinations were performed :—

	1915.	1916.	1917.
Total number vaccinated ...	6,880	87,705	105,988
,, ,, successful ...	4,976	71,744	68,763

55. The figures for 1916 and 1917 were inflated by returns from Medical Officers who performed a great number of vaccinations in both years, and as they are not now required to give so much of their time to the suppression of small-pox, owing to the large number of Vaccinators at work, it is unlikely that the year 1918 will show such high totals as the two previous years. Also in the year 1916, 87·7 per cent. of the vaccinations performed were afterwards inspected, whereas in 1917 only 73·5 per cent. were seen, this being due to the fact that in 1916 Vaccination Centres attended by Medical Officers and Assistant Public Vaccinators were established in limited areas where compulsory vaccination was carried out, and the vaccinated could return to these centres, whereas in 1917 the object aimed at was to have as many vaccinations performed as possible over a very large area.

56. Under a new Vaccination Ordinance which has been drafted it will be possible by Order of the Governor to have certain areas or certain people compulsorily vaccinated while promiscuous vaccination can be carried on elsewhere as is done at present.

3.—Helminthic Diseases.

57. It is hoped that by the introduction of good water supplies to towns and villages which are yet without them and the general improvement in sanitary conditions, Helminthic Diseases will be of much less frequent occurrence than formerly.

III.—GENERAL MEASURES.

1.—Clearance of Bush, Undergrowth, Etc.

58. Clearing land of bush, underbrush and grass, was carried out wherever possible for the purpose of opening up hidden pools, swamps, borrowpits, and along the banks of streams, so that they could be readily dealt with to prevent mosquito breeding and to get rid of tse-tse flies where these were found to exist.

59. The land of the Cape Peninsula, which was formerly a favourable habitat of the *Glossina palpalis*, and had been cleared the previous year, was kept as open as possible and much grubbing was done so that farming operations, chiefly confined to the growth of low crops, such as groundnuts and sweet potatoes, could be carried out by those living or working in the vicinity, this tending to further prevent the growth of grass and underbrush. A large portion of ground close to Murray Town was cleared under the supervision of the Military Authorities and other tracts scattered over the country, and fairly extensive in area, were similarly treated.

60. In some of the out-stations the clearing around towns and villages was extended, and where an extension of a village took place the huts were built farther apart than usual, thus necessitating the opening up and keeping clear of a greater area of ground. A large number of villages are closely surrounded by bush, but an attempt has been made, which has resulted in some success, to get natives to build on more open sites, as much of the bush in the neighbourhood of villages is regarded as sacred, and there is some opposition to any suggestion of its being cut down or interfered with in any way. This sacred bush is generally a most insanitary area and a fertile source of mosquito-breeding.

II. DISPOSAL OF REFUSE.

61. With the exceptions of the provision of a few new dustbins, improvements in the old type of incinerator, to obtain a better draught, and so dispose of the refuse more quickly, and alleviate, to some extent, the intolerable and distressing conditions set up by the smoke nuisance, which are much worse during the rainy season, and the introduction of a daily collection of refuse from houses by carts in a very small area in Freetown, there has been no change in the former method of disposal of refuse.

62. The improvement in road construction which is now taking place will make it possible to extend house to house collection, which would prevent the setting up of nuisances in open places and around dustbins where large quantities of refuse are deposited by children and adults, some of the former too small or too weak to place the refuse inside the bins, which require some modification in design to make them more useful.

63. Much of the refuse thrown down chutes or over cliffs returns to the beach, and at low tide looks very unsightly, if it is not actually insanitary, and destruction of the whole of the refuse seems to be the only way out of this

difficulty. At the present moment it is practically impossible to find sites for dustbins in Freetown, so few are the open spaces and so little of the land, which is expensive, is unowned, and unless house-to-house collection can be carried out extensively or completely it will be necessary to acquire land to provide open spaces as well as dustbin and other sites.

III. DRAINAGE.

64. Beyond a certain amount of repairing and regrading little was done to improve the drainage of Freetown, which is in a very unsatisfactory condition, yet no place seems better adapted to a simple surface drainage system; and if a scheme were drawn up by the Acting Sanitary Engineer for the improvement of such areas as are well laid out, and which could be extended to the other sections as they are made to conform to up-to-date methods of town-planning there is reason to believe that it would be adopted and pushed forward by Government.

SEWAGE DISPOSAL.

65. There is little to add to what has appeared in former reports regarding sewage disposal. Cess pits are in use in all the larger towns, and it is hoped, at least, in Freetown, to gradually replace these by introducing the sanitary pail system.

66. Apart from the large numbers of flies, including mosquitos, bred out from cess pits, the difficulty in keeping them clean and having them regularly emptied, and the danger of contaminating wells through their close proximity to the latter, they are a source of great expense to Government, as most of them have to be regularly treated with a mixture of oil and neat disinfectant, which is the only way to prevent fly breeding and reduce the chances of their being a serious menace to health by contaminating the water in the wells.

IV. REGULATION OF BUILDINGS.

67. As stated in the report for 1916, it is unlikely that new building regulations will be introduced until there is a return of normal times, and as such regulations would only be applied to the largest and most important towns, where little in the way of building operations is going on at present, their introduction is not urgent, though it might be advisable, in view of the possibility of a large number of buildings being erected at an early date, owing to the sudden accession to wealth of the colony, and especially of Freetown, to prepare for any future emergency; as while the older parts of the town are well laid out, although many of the buildings are in a dilapidated condition, the newer portions have been allowed to grow up in any sort of fashion, so that there are, besides dilapidation, narrow irregular streets and lanes, intense overcrowding, hardly any open spaces, and it is practically impossible, without more or less complete destruction of certain areas, to devise a means of draining them or making streets sufficiently wide to meet the needs of the place, and consequently lead to better ventilation and an improvement in health conditions. Cumbersome regulations would only defeat their own purpose and hinder permanent progress and improvement, as many owners of land are not wealthy enough to erect buildings of an elaborate type.

V. SANITARY INSPECTIONS.

68. Inspections for nuisances of all kinds were more vigorously carried out in Freetown than during the previous year, nearly 16,000 more visits to compounds having been made resulting in 1,000 more notices being issued, yet there were only about one-fourth of the prosecutions of the previous year which

would seem to mean that owing to the greater diligence of the Sanitary Inspectors combined with a stronger desire on the part of the people to escape prosecution, attention was given to the abatement of nuisances which otherwise would have been allowed to go on. This appears to be a healthy sign and, if persisted in, would tend to the prevention of nuisances rather than their commission and abatement.

69. In 1917, 87,897 notices were served for the abatement of nuisances. Thirty-eight prosecutions followed with a conviction in 22 cases and 7 cases remained unheard at the end of the year.

70. Food inspection was, as usual, carried out by the Medical Officer of Health and resulted in the condemnation of various carcases which were found to be unfit for human consumption. The inspection of meat at the Public and Imperial Slaughter Houses, carried out by the sanitary staff, resulted in the seizure and destruction, by order of the Police Magistrate, of 17 bullocks out of 8,198 slaughtered, besides which 240 sheep, 28 goats and 38 pigs were disposed of. In the year 1916, of 6,224 bullocks, 669 sheep, 17 goats and 69 swine slaughtered, and 32 bullock carcases were condemned, seized and destroyed. Whether the animals are becoming healthier is a moot point, but some people are inclined to the belief that meat inspections are not so rigid as formerly, and many carcases slightly infected with *cysticerci bovis* are passed as fit for human consumption which were formerly rejected.

TOWN PLANNING.

71. In the Colony proper many of the places designated as "Towns" are merely villages of, at most, a few hundred inhabitants, and there is little to find fault with in their lay-out, the streets generally being wide, the plots sufficiently large to suit the requirements of the inhabitants; the houses—many of them well built and maintained in good condition—being set at reasonable distances apart, churches and schools which are usually found in abundance occupying prominent positions in well-selected areas and open spaces have not been lost sight of. When a village is chiefly occupied by representatives of one of the more important Tribes it is a replica of that tribe's villages in the Protectorate where each has its own ideas, passed on from generation to generation, regarding selection of site, town planning and building construction.

72. During the year a beginning was made in the Protectorate in laying out completely new villages on old sites where these were found to be the most suitable, and on new sites when the old village covered, or was in close proximity to, an unhealthy area, or for other reasons, and, in other cases, where the huts had been recently though irregularly built and the site area was good, an extension was made according to a new plan which was submitted to and approved by the Governor, whose interest in town-planning, as in other matters affecting the health of the Colony and Protectorate, enabled the District Commissioners and myself to carry out and make a success of the undertaking.

73. In town-planning, as in everything else, the mode of the life of the inhabitants has to be considered and to some extent followed, and as the more important tribes, such as the Mendis and Temnes, live on the family system, and their huts, as originally built, are of a more or less uniform size, though standing at varying distances apart, some being very close together and dotted irregularly over the site area, groups of huts being fenced in or connected up by low mud walls, it became necessary to construct a plan giving them the advantages originally sought and providing sufficient space for necessary sanitary accommodation which, except in the compound of the Chief, was usually awanting.

74. As there is abundance of land in the country, towns are small, in many parts good water supplies can be found or a well supply made, the plan agreed upon as being most suitable to the majority of the Protectorate people consisted of family groups of eight huts, constructed in the form of a square, three huts on each side, the space between each pair of huts and the diameter of each hut being 40 feet. Eight of these family groups or squares, placed 40 feet apart form larger squares of three groups on each side, these larger squares being separated by a road 80 feet wide. In this plan sanitary accommodation can be provided for each family or group of families, as the case may be, and by omitting a square or group of squares as many open spaces as desired may be obtained.

75. At a few important trading centres sites were selected by the District Commissioner and the Senior Sanitary Officer with the object of forming Settlers' Reserves or Trading Zones outside the native towns. All traders in these areas will thus be segregated instead of being scattered about the towns and along the various trade routes.

76. A novel plan of a vernacular school compound for students in Agriculculture providing all necessary accommodation and requirements was also submitted to and gained the approval of His Excellency. This plan, like that of the lay-out of a native village, was constructed to suit native requirements, and while the sanitary conditions under which the native lives will be improved his natural mode of life will not be interfered with in any way.

VIII.—WATER SUPPLY.

(*a*) To Freetown.

77. Through the courtesy of the Waterworks Superintendent in Freetown the following information showing the progress made in 1917 was supplied:—

(1) The gravitation section of the Babadori Extension comprising three intakes, $5\frac{3}{4}$ miles of $8\frac{1}{2}$ ins. and $2\frac{3}{4}$ miles of 6, 5 ins. and 4 ins. steel mains was handed over by the Government to the City Council in July.

(2) The Clay dam at the Pumping Station in the Babadori Valley was being replaced by a concrete dam, but the Pumping Station was not yet handed over to the City Council.

(3) In addition to 550 yards of 5 ins. and 6 ins. mains laid to Government Wharf to supply shipping 1,126 yards of 3 ins. water mains were put down.

(4) The Reservation Guards were increased, two being detailed to the Edeoroko and George Brook, two to the Congo Brook and seven to the Babadori Reservations respectively, their duties being to flush out the intakes, patrol the pipe lines and reservations and to prevent people from trespassing.

(5) The Northern boundary of the Congo Brook Reservation extending to the Wilberforce Regent Road was fenced in for a distance of 120 yards and the northern boundary of the Babadori Valley Reservation along the Hill Station-Adonkia Road for 1,254 yards.

(6) There was some shortage of the water supply for about two months during the year, due to an average of over 100,000 gallons being supplied daily to shipping and to the pumping plant having been dismantled.

(*b*) Supply to other places in the Colony.

78. The supply to Kissy was augmented through the railway ceasing to use the water to that village for the engines and the supply to Waterloo was improved. That to Hastings requires to have a new main laid down.

79. Some of the villages outside Freetown are greatly in need of a sufficient supply of potable water, and various suggestions have been put forward with a view to remedying the defect. Many of the shallow wells or water holes at York Island, which were useless and bred out large numbers of mosquitos, have been closed, but the water supply here as well as at Bonthe requires to be augmented. A new auxiliary catchment area was taken over by the Military Authorities.

(*c*) Supply to Places in the Protectorate.

80. The construction of wells at Kanre Lahun, Pendembu Daru, Bo School, and other places was recommended, and work on several of them was begun, but in most cases, owing to various adverse circumstances their completion has been delayed. Where good natural water supplies can be obtained they are preferable to wells, and an attempt has been made to protect some of them from contamination and bring the water within reasonable distance of those requiring it.

Sanitary Station.

81. Owing to tornadoes much damage was done to several of the main buildings and small outhouses of the Cape Sanitary Station, but steps have been taken to have the necessary repairs carried out.

Slaughter Houses.

82. In the Public and Imperial Slaughter Houses in Freetown 8,198 bullocks, 240 sheep, 28 goats and 38 pigs were slaughtered: 17 bullocks were seized and destroyed by order of the Police Magistrate on account of the animals being infected with *Cysticerci Bovis*.

83. On account of the lax manner in which business was conducted in the public slaughter house, new and more stringent regulations were drawn up, but conditions have not improved a great deal as all the regulations are not enforced.

Markets.

84. In this country there are not many large open air markets such as one finds in other countries, and the consequence is that in such market buildings as exist overcrowding is the rule.

85. In Freetown there is a fairly large market held at King Jimmy in the hollow between the Hospital and Messrs. Elder, Dempster and Company's premises, and here there is also a market building, which, however, is quite inadequate to meet the needs of the various traders who frequent the place, and the open ground is not well adapted for market purposes. If the whole market site were raised a few feet and a sea wall built between the two sites above-named an excellent market place could be obtained.

III.—MEASURES TAKEN TO SPREAD KNOWLEDGE OF HYGIENE AND SANITATION.

I.—Lectures.

86. The Medical Officer of Health continued, as usual, to give elementary lectures and practical instruction in sanitation to the Sanitary Inspectors.

II.—School Teaching.

87. The teaching of Hygiene and Sanitation in Schools was carried on with marked success, the Director of Education having expressed himself as being highly gratified with the results obtained in examination.

III.—Recommendations for Future Work.

(A) The introduction of satisfactory drainage schemes for Freetown and Bonthe.

(B) More complete fencing of Catchment Areas.

(C) Compulsory closing of wells in Freetown.

(D) The introduction of simple building rules for Freetown.

(E) The construction of separate septic tank installations at Hill Station.

(F) Revision and simplification of the Public Health Ordinances.

(G) The adoption of a suitable means for emptying cesspits.

(H) Improvement of incinerators and dustbins.

(I) Reconstruction of Infectious Diseases Hospital at Kissy.

(J) Continuation of scheme for providing and protecting water supplies.

(K) Removal of villages from unsuitable sites and rebuilding according to new plan.

(L) Provision of Inspectors for Protectorate and Colony outside Freetown and Bonthe, especially in Districts having a history of Yellow Fever and for the various sections of the railway.

R. LAURIE.
Senior Sanitary Officer.

Sanitary Offices,
Freetown, Sierra Leone,
23*rd July*, 1918.

Summary of Routine Sanitary Work done during the Year in the Town.

1. Name of Town: Freetown.

—	Approximate area.	Number of proclaimed open spaces.
... ...	$2\frac{3}{4}$ miles.	2 Public Recreation Grounds.

2. Population.

—	No. of Natives.		No. of Europeans.		Total.
	Males.	Females.	Males.	Females.	
Census of 1911	33,363 and 169 Asiatics.		558		34,090

3. Housing.

—	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses:—		
1915	98	6,033 Including
1916	112	5,608 all non-
1917	120	5,678 Europeans.

Number of Huts:—
1915 ... ...
1916 ... ...
1917 ... ...

4. Mosquito Protection of Houses.

—	1915.	1916.	1917.
Number of European houses wholly mosquito-protected	—	—	—
Number of European houses with mosquito room	—	—	—
Number rendered during the year wholly mosquito-protected ...	—	—	—
Number rendered during the year partially mosquito-protected ...	—	—	—

5. Erection of New Buildings during the Year.

—	1915.	1916.	1917.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings.	—	—	—
Number of houses erected with sanction as to site, construction, and relation to other buildings.	—	—	—
Number of huts erected with sanction as to site, construction, and relation to other buildings.	—	—	—
Number of houses built without sanction	—	—	—
Number of huts built without sanction	—	—	—

Excludes Hill Station, Chine Town Reservation.

Action taken :—

—	Number of Prosecutions.		Number demolished.	
	Huts.	Houses.	Huts.	Houses.
1915	—	—	—	—
1916	—	—	—	—
1917	—	—	—	—

6. Markets.

——	Total Number.	Number paved and drained.	Number unpaved.
1915	10	8	2
1916	10	8	2
1917	10	8	2

7. Slaughter-houses.

——	Total number.	Total paved and drained.	Number unpaved.
1915	2	2	—
1916	2	2	—
1917	2	2	—

8. Latrines.

——	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1915	9	23	9	21
1916	9	47	9	24
1917	16	71	11	48
Number of New Public Latrines erected during year :—				
1915	—	—	—	—
1916	1	12	1	12
1917	2	24	2	24
Number of Public Latrines repaired during year :—				
1915	—	—	—	—
1916	6	—	6	—
1917	6	—	6	—
Number of Public Latrines demolished during year :—				
1915	—	—	—	—
1916	1	4	—	4
1917	—	—	—	—

———	1915.	1916.	1917.
Number of Private Latrines	184	229	241
Average number of pails of nightsoil removed daily	251	271	298
Average number of soiled pails removed and clean pails substituted ...	—	—	—
Number of nightsoil men employed to clean latrines and remove excreta ...	—	—	—
Number of cesspools	4,135	4,140	4,123
Number of cesspools cleansed	972	796	1,057
Number of new cesspools constructed during the year	135	85	96
Number of old cesspools abolished	150	80	88
Number of cesspools oiled regularly by Department	560	657	612

9. Removal of refuse.

——	1915.	1916.	1917.
Number of dust-bins	93	73	73
Number of carts (if employed) at work, etc. (working intermittently)	5	5	5
Amount of refuse removed daily from streets	35 tons.	35 tons.	35 tons.
Number of carts (if employed) at work daily, etc.	—	—	—
Amount of refuse removed daily, etc.	—	—	—
Number of men employed for removing refuse (average) ...	175	175	175

10. Mode of disposal of excreta, refuse and offal.

——	Daily average number of pails of excreta.			Daily average number of cartloads of refuse.			Daily average number of cartloads of slaughter-house and market offal.		
	1915.	1916.	1917.	1915.	1916.	1917.	1915.	1916.	1917.
Burial or trenched									
Burnt									
Thrown into Sea									
*Otherwise dealt with									

* State mode of disposal.

11. Average daily number of canoe-loads of tin cans, bottles, broken crockery and other incombustible material removed from houses, huts and compounds and dumped into the sea.

1915.	1916.	1917.
9	10	12

12. Water Supply.

Nature of Water Supply.	1915.	1916.	1917.
Pipe-borne water :—			
Source (river, lake or spring) :—			
Number of linear yards	—	—	—
Number of stand pipes along roads	—	—	—
Number of stand pipes in compounds and houses	—	—	—
Wells :—			
Public :—			
Number	1	1	1
Number with pumps protected against surface water and mosquito-protected	—	—	—
Private :—			
Number	638	745	731
Number protected against surface water and mosquito-protected	8	61	61

12. Water Supply—*continued.*

Nature of Water Supply.	1915.	1916.	1917.
Tanks :—			
Public :—			
Number underground	—	—	—
Number mosquito-protected and served by pumps	—	—	—
Number above ground	—	—	—
Number mosquito-protected	—	—	—
Number of 400 gallons capacity or less	—	—	—
Number above 400 gallons	—	—	—
Private :—			
Number underground	—	—	—
Number mosquito-protected	—	—	—
Number above ground	43	25	23
Number mosquito-protected	11	8	8
Number of 400 gallons capacity or less	—	—	—
Number above 400 gallons	—	—	—
Nature of tanks :—			
Wood	—	—	—
Iron	—	12	11
Concrete	—	13	12
Barrels :—			
Number	—	—	—
Number mosquito-protected	—	—	—

13. Drainage.

Nature of Drainage.	Public.	Private.
Masonry Drains :		
Lineal yards of masonry drains :—		
1915	—	—
1916	—	—
1917	—	—
Lineal yards reconstructed during the year :—		
1915	—	—
1916	—	—
1917	—	—
Lineal yards repaired during the year :—		
1915	—	—
1916	—	—
1917	—	—
Lineal yards of new drains constructed during the year :—		
1915	—	—
1916	—	—
1917	—	—
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :—		
1915	—	—
1916	—	—
1917	—	—
Number of linear yards of ditches dug and graded :—		
1915	—	—
1916	—	—
1917	—	—
Average frequency of clearing ditches of grass :—		
1915	—	—
1916	—	—
1917	—	—

14. Clearance of undergrowth, long grass and jungle.

——	1915.	1916.	1917.
Number of square yards of weeds, grass, and vegetation cut and removed	—	—	—
Average frequency of clearance of rank vegetation on same area	Cleared	twice a	year.

15. Excavations and low-lying land.

——	1915.	1916.	1917.
Number of pools and excavations	—	—	—
Number of excavations filled up	—	—	—
Amount of low-lying and marsh land raised and drained	—	—	—
Number of pools, marshes, streams, etc., fish-stocked	—	—	—
Number of cubic yards of material used for filling up pools and excavations	—	—	—
Number of persons fined for making new excavations	—	—	—
Average number of men daily employed in filling up pools, etc. ...	—	—	—

16. Oiling.

——	1915.	1916.	1917.
Number of drains oiled...	13,742	15,040	46,225
Number of pools and excavations oiled			
Number of tanks and barrels oiled	130	—	—
Average number of men daily employed for oiling drains, pools, water-tanks or barrels	5	5	5

17. Inspections and Prosecutions.

——	1915.	1916.	1917.
Number of inspectors employed	19	19	19
Number of houses inspected	94,760	72,204	87,897
Number of houses where larvæ were found	624	361	529
Number of notices served to remove conditions causing the breeding of larvæ	6	20	—
Number of persons fined for having mosquito larvæ on premises ...	530	305	388
Number of notices served to remove insanitary conditions on premises	5,597	4,960	5,825
Number of persons fined for not removing insanitary conditions after notice	414	132	38
Number of soda and aerated water factories inspected	1	—	—

These men may be employed on other duties.

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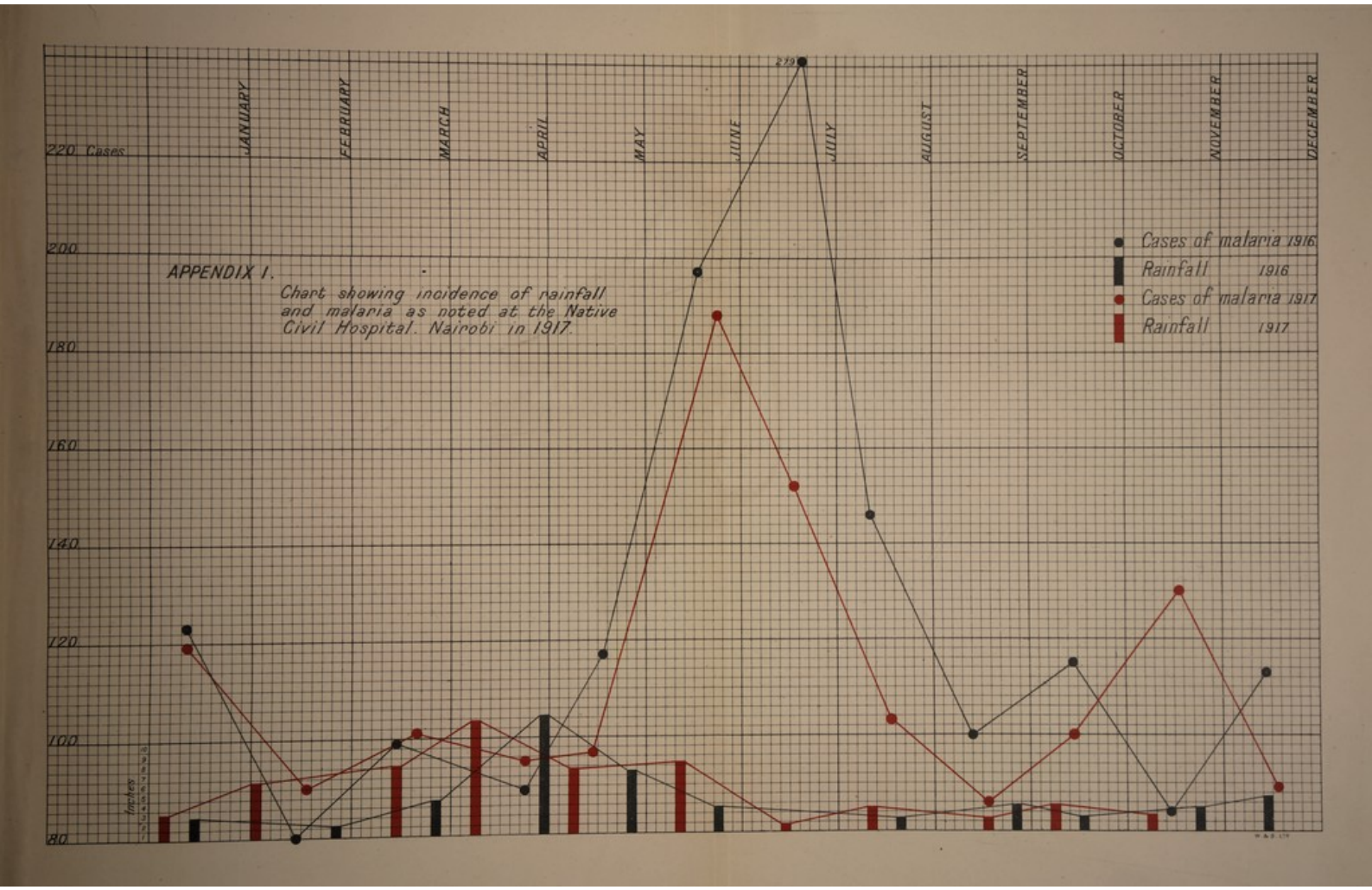
APPENDIX I.
Chart showing incidence of rainfall and malaria as noted at the Native Civil Hospital. Nairobi in 1917.
Cases of malaria 1916
Rainfall 1916
Cases of malaria 1917
Rainfall 1917
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
220 Cases
200
180
160
140
120
100
80
279

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